An aerial photograph of a city street. In the center, there is a prominent clock tower with a red roof and a white face. To the left, there are several multi-story buildings with grey roofs. To the right, there are more buildings and a large area of green trees. The overall scene is a dense urban environment.

# Better parking for better places



Committee  
for  
Sydney



# Contents

|   |          |   |           |  |           |   |            |
|---|----------|---|-----------|--|-----------|---|------------|
| <b>Foreword</b>   | <b>7</b> | <b>I. Reducing the need to store cars</b>                     | <b>24</b> | <b>II. Off-street parking</b>  | <b>48</b> | <b>III. Rethinking the kerb</b>                       | <b>90</b>  |
| Why care about parking?                                       | 8        | 1. Create better alternatives to driving                      | 26        | 3. Reduce commuter parking in places trying to become major CBDs               | 50        | 9. Reclaim high streets for parking and public spaces | 92         |
| Great urban neighbourhoods don't have room for very many cars | 10       | Case study: London's mode-share target                        | 32        | 4. Optimise parking facilities at suburban rail stations                       | 54        | Case study: San Francisco parklets                    | 96         |
| Parking is expensive  | 12       | Case study: City of Canterbury-Bankstown shifting mode-share  | 34        | Case study: At-grade surface parking in Sydney that could be redeveloped       | 58        | 10. Use dynamic pricing and permits                   | 98         |
| Kerb space can be used for things that make daily life better | 14       | 2. Accelerate the switch to car-sharing and ride-sharing      | 36        | Case study: Amsterdam 'Park and Ride'  | 60        | Case study: San Francisco SFpark                      | 100        |
| Case study: Alternate uses of the kerb lane                   | 16       | Case study: Demand for car-share is increasing in NSW         | 38        | 5. Let the market decide how much parking to build in residential developments | 62        | <b>Appendix</b>                                       | <b>102</b> |
| New mobility trends are changing the way people move around   | 18       | Case study: Car-share and public transport integration in NSW | 42        | Case study: Waverley Council maximum parking requirements                      | 66        |   |            |
| Principles for a better approach                              | 21       | Case study: Sydney residential developments with car-share    | 44        | Case study: California's unbundled parking                                     | 68        |   |            |
|   |          | Case study: Car-share across Greater Sydney                   | 46        | 6. Design better parking stations  | 70        |   |            |
|   |          |   |           | Case study: Convertible carpark at 32 Smith Street, Parramatta                 | 72        |   |            |
|   |          |   |           | Case study: Convertible commuter carpark, Campbelltown                         | 74        |   |            |
|   |          |   |           | Case study: EXO at Victoria Harbour, Melbourne                                 | 76        |   |            |
|   |          |   |           | Case study: Well-designed carparks   | 78        |   |            |
|   |          |   |           | 7. Make new parking electric-capable   | 80        |   |            |
|   |          |   |           | Case study: United Kingdom EV requirements                                     | 82        |   |            |
|   |          |   |           | 8. Use funding from off-street parking to make neighbourhoods more liveable    | 84        |   |            |
|   |          |   |           | Case study: Austin's 'Parking Benefit District' program                        | 86        |   |            |
|   |          |   |           | Case study: 'Bicing' – Barcelona's subscription bike-share service             | 88        |   |            |

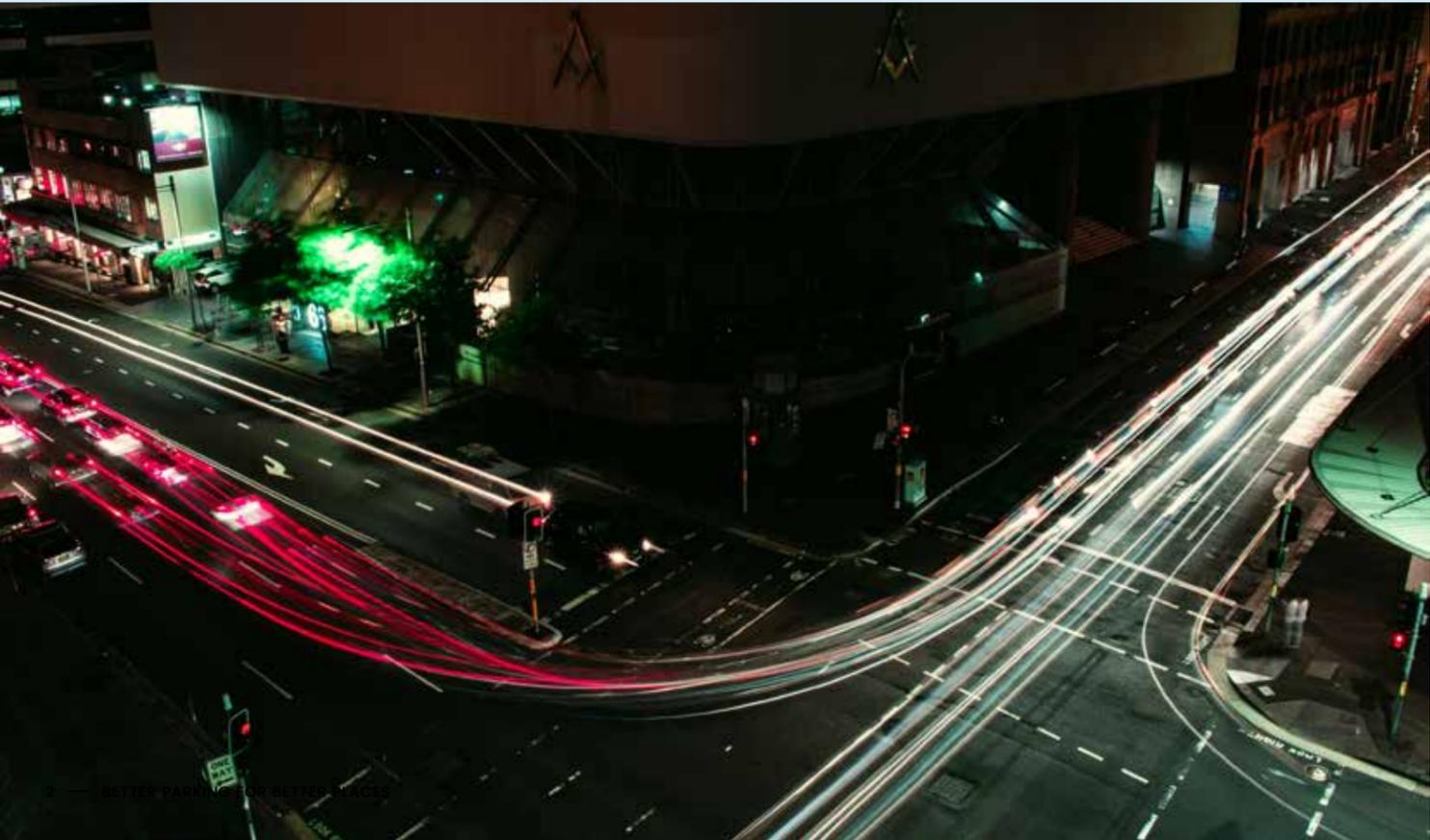




Image source: Kensington Street, Chippendale, Source: Destination NSW



**Lead author**  
Harri Bancroft

**Co-author**  
Gabriel Metcalf

Thank you Kinesis for  
data analysis support.



## Foreword

The overriding purpose of parking is to facilitate access, but in its attempt to do this it often restricts access. The provision of parking in our cities is counter-intuitive in many ways.

Challenges of parking are felt right across Greater Sydney, and the entire world. There are case studies of cities that achieve the objective of facilitating access in creative and future-focussed ways. These case studies often demonstrate that to reduce the need for parking we need to facilitate access by other means. With this end goal we also need to plan well for the future by designing parking structures to serve some other function once the need for parking is reduced. But there is no silver bullet – if there was, we wouldn't be talking about it!

Parking isn't just a conversation for our capital cities, it requires particular consideration for our suburbs and metropolitan fringe areas, where the dependency on motor vehicles has been created through planning assumptions and development scenarios. A reconsideration of the way we plan is essential if we are to deliver improved wellbeing outcomes for the people of Greater Sydney.

This paper respects that there isn't a one-size-fits-all solution. It talks to matching progressive parking policies to different types of places. It recognises that for real change, accountability needs to be shared across all levels of government, it needs to transcend political boundaries and it needs to bring together the diverse efforts of government agencies.

The solutions aren't necessarily about investment in infrastructure and where they are, it isn't about more investment, but smarter investment. The solutions must consider matching the right solution to the right place, prioritising parking for the people who really need it and maximising the positive impacts of parking on place and minimising the negative impacts.

The first positive step needs to be a change in thinking about how we proactively focus on equity of access. Equity of access doesn't mean just access to parking... it means access to services, access to jobs, access to recreation, access to a range of mobility options... and through this, minimise the challenge of parking.

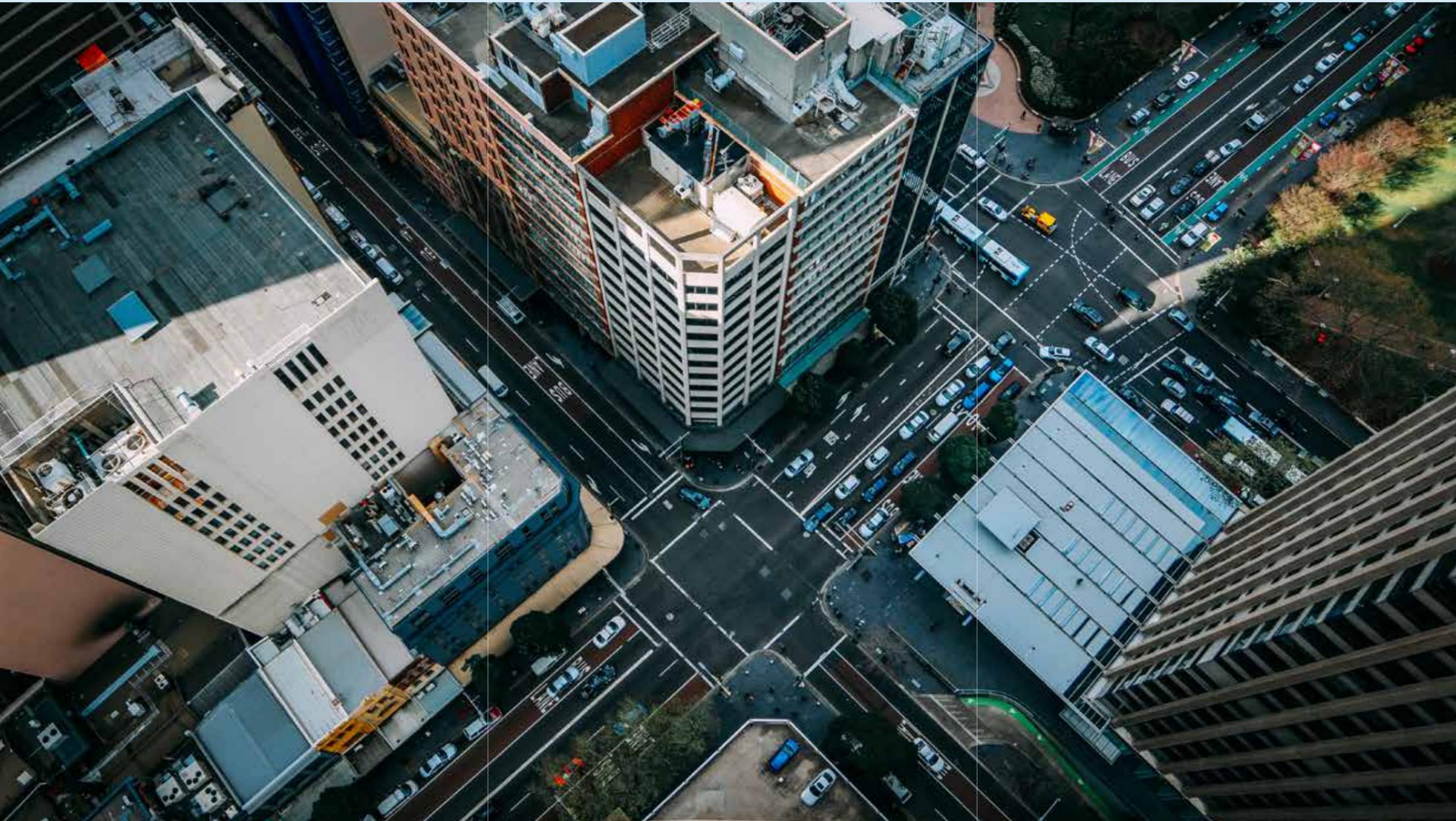
Better parking for better places is the Committee for Sydney's latest conversation starter; I encourage you to read, digest, discuss, share and promote this paper exploring active opportunities to move the dial on one of Sydney's most widely-discussed challenges.



**Lindy Deitz, General Manager,**  
Campbelltown City Council



# Why care about parking?



Where parking is located, how much it costs, and how it is regulated, impacts how we choose to get around, how our cities are built, and how much money we spend on transport.

Sydney does need parking – given how much of the city was built at densities too low to support frequent public transport, driving remains the only option for many, and a fact of life. Particular jobs or family situations often necessitate lots of driving as well. But too much parking, in the wrong places, causes unintended negative consequences.

In the long run, Sydney is working to build up alternatives to driving, so people have more choice of how they get around. But even while we work on other options, there are several reasons to care directly about how we manage parking.



## Great urban neighbourhoods don't have room for very many cars

In the movies, the hero gets a parking spot in front of the restaurant in New York City, and walks right in. But in the real world, that's not how it works.

Highly concentrated, highly walkable places with lots of things to see and do only work if most people get there without a car. The reason is based in geometry: cars take up so much space that roads and carparks end up pushing destinations apart if there are too many of them. Building the kind of city that provides enough road space and enough parking spaces to make driving and parking easy for everyone ends up creating inactive places that lack urban energy.

This is why, when you think about it, all of the cities we like to visit have terrible 'parking problems.'

Some places may be perfectly happy with wide roads and parking lots. But for cities that want to be active and walkable, being more sophisticated about managing parking supply is necessary.



New York City, USA

## Cars take up more space than other modes of transport

The reason walkable cities require most people get around without a car is because of how much space cars take up.

50 pedestrians

50 cyclists

50 people on a bus

50 people in 33 cars

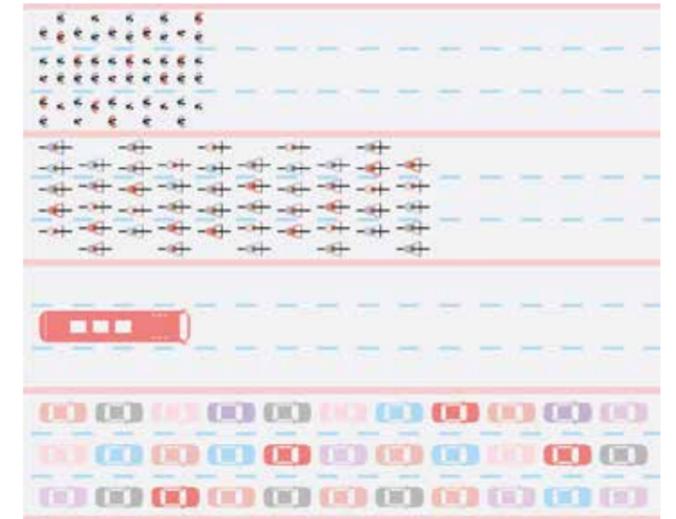


Image source: Flickr, NYC DOT



## Parking is expensive

The cost of building parking adds directly to the cost of housing (and other development).

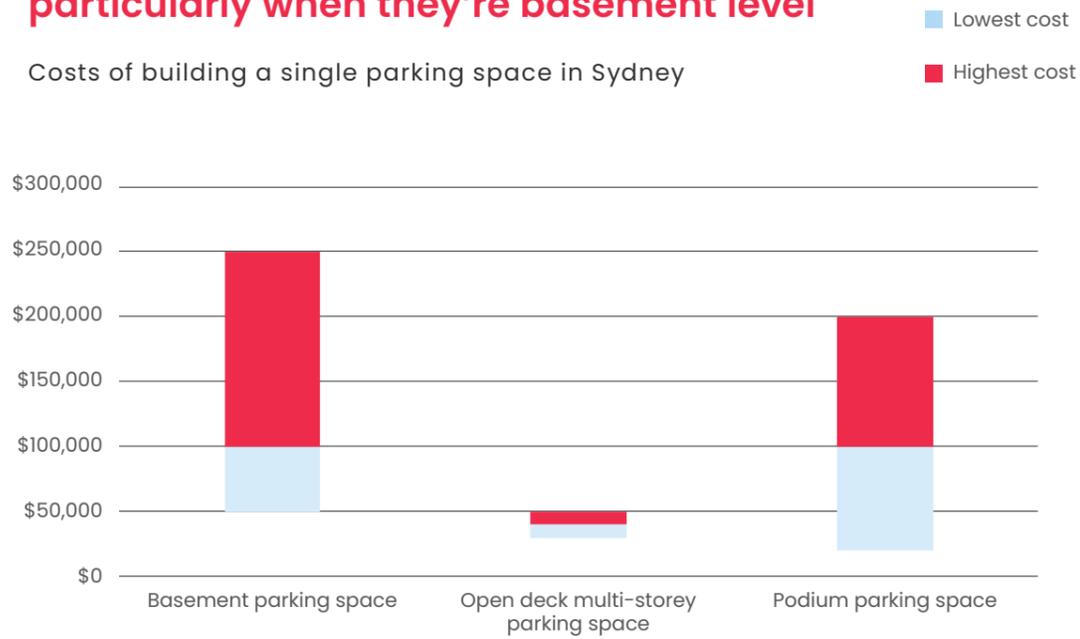
One way of making Sydney housing more affordable is to make it easier for families to get by with only one car, or even no cars, so we don't have to build as much parking. People should have the choice to purchase or rent an apartment with or without parking, so they don't have to pay for a parking space if they don't need it.

Image source: Unsplash, Monica Silva

Dense, walkable places don't have room for many cars

## Carparks are expensive to build, particularly when they're basement level

Costs of building a single parking space in Sydney



Source: Committee for Sydney, based on conversations with Sydney property developers and the Rider Levett Bucknall Construction Cost Indicator online tool



Tokyo, Japan



## Kerb space can be used for things that make daily life better

The kerb lane provides the highest level of convenience, and at the same time it is highly limited. Especially in CBDs, town centres and on high streets, there will always be more demand for kerb space than the available supply.

In general, on-street parking is a *positive amenity* for people who are walking because it provides a buffer from moving traffic. We will argue that one of the big things we need to do is remove clearways on high streets so parked cars can remain in place. However, we also need to manage this precious resource to integrate a set of other uses.

These include traditional uses like loading and unloading, which are increasing in some locations as the culture moves to more home delivery. They also include newer amenities like parklets (small public spaces that go in the kerb lane), which add a lot of value to town centres and high streets.

Uses for the kerb lane in CBDs, town centres, and on high streets include:

- Short term parking
- Designated car-share parking
- Loading and unloading
- Pick up and drop offs
- Parklets
- Trees
- Bike/scooter corrals
- Bus bulbs

When you remove clearways, you can get creative about what you do with the kerb lane and have that space work harder for everyone. All of this requires more sophisticated approaches to managing the kerb.

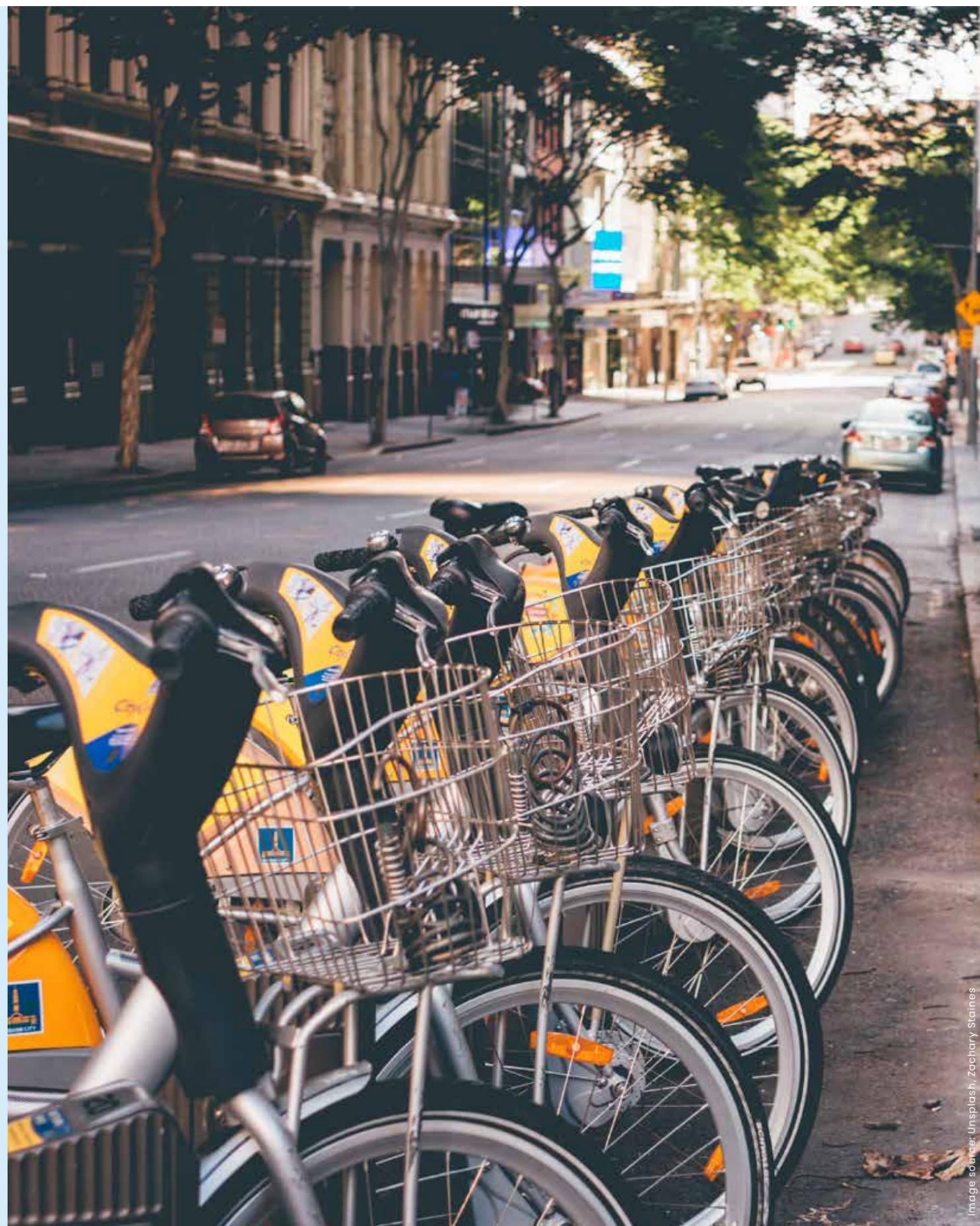


Image source: Unsplash, Zachary Staines



CASE STUDY:

# Alternate uses of the kerb lane



Image source: Unsplash, Monica Silva

Bus bulb



Image source: Unsplash, Susan Q Yin

Bike corral



Image source: Devigne

Parklets

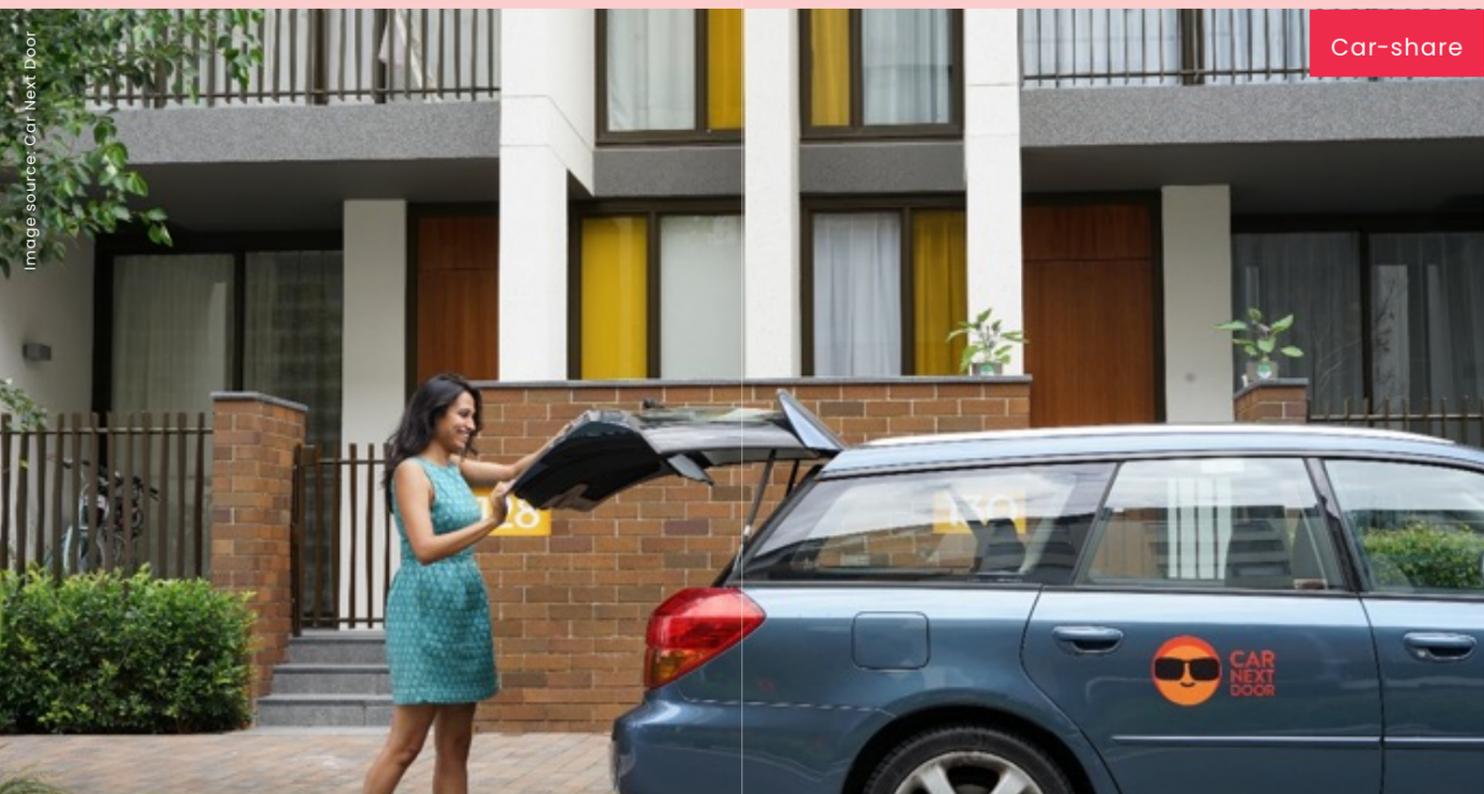


Image source: Car Next Door

Car-share

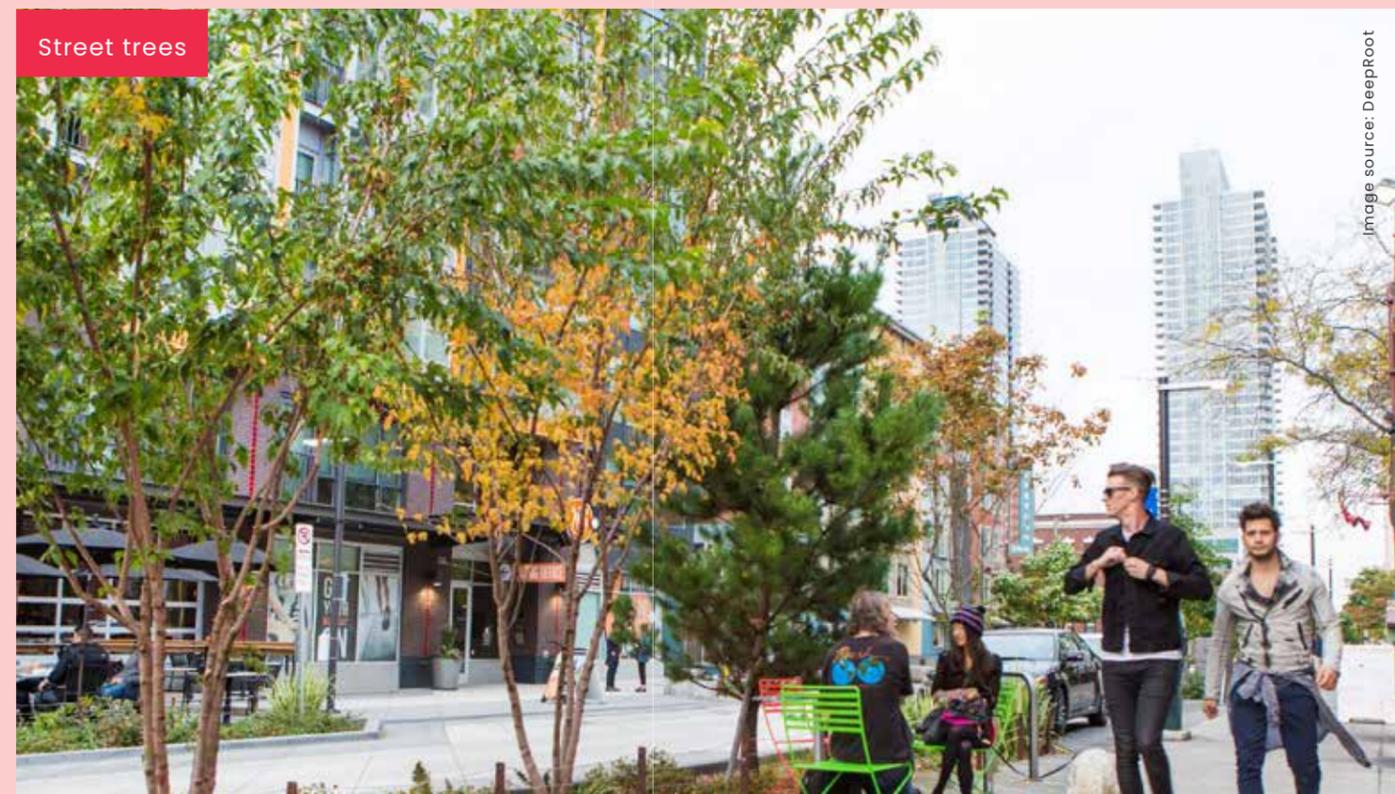


Image source: DeepRoot

Street trees



## New mobility trends are changing the way people move around

One of the newest trends in city life is the move to treat mobility as a service instead of a capital good. Mobility as a Service (MaaS) refers to transport options that can be booked in real-time, generally via an app, and only cost for the time used. Examples include on-demand mini-buses, car-share, ride-share and bike/scooter-share. The idea is you pay for access and mobility, rather than the capital cost of a vehicle.

MaaS tends to be used by inner-city dwellers and young people, but there is a possibility these services will expand to serve more people over time. In less central locations, MaaS is more likely to replace ownership of a second or third vehicle, instead of replacing car ownership altogether.

Because vehicles are shared by users, they're more regularly in use than private vehicles that sit idle most of the time. Where a private car may make only two trips a day for one person, a car-share or ride-share vehicle makes many trips a day for many different people.

MaaS reduces the need for parking because being able to use a shared car when needed, without having to store one for each person, translates into the need to store fewer vehicles overall.

If and when autonomous vehicles become the norm, it is likely we will need even less space to store cars. The most convenient and cost-effective option will be to summon a car for a trip rather than owning one and taking it with us everywhere we go. This will likely lead to a significant decline in overall car ownership rates.

Other trends in mobility are having similar impacts. The rise of ecommerce and home delivery means people buy goods and services without traveling anywhere. Ecommerce has transferred an enormous amount of personal mobility to delivery companies, who now bring almost anything you can think of to your door.

Designing cities around the assumption everyone needs a car with them at all times no longer makes sense. Our cities need to reflect the fact there are many different personal situations and many different ways of getting around.





Image source: Liverpool City Council, Ben Williams Photography

# Principles for a better approach

These are the three principles that guide our thinking about parking policy:

- **Match the right solution to the right place.** One size does not fit all. The right solution for a CBD will be different from a suburban high street or single-family residential neighbourhood. Matching the right parking strategies with the right location is essential. Places like Parramatta, which is becoming a major business district, will need to adopt policies that get most people in and out without a car, like other successful CBDs. Whereas a new development, built far from public transport, will have to provide a lot of parking.
- **Prioritise parking for the people who really need it.** We can design our parking policies to make sure that people who need a car most are able to get it. We can choose to prioritise space for tradies and deliveries in the CBD, rather than daily commuters. We can choose to prioritise higher turnover shopping trips at a local high street rather than all-day parking. People with mobility impairments can be prioritised in many situations.
- **Maximise the positive impacts of parking on place and minimise the negative impacts.** Parking is a way to help people access the city. And kerbside parking is often a useful buffer between public space and moving vehicles – so a positive amenity in many cases. However, parking stations often blight city streets and entrances do not make for a nice walking environment. Moreover, too many parking spaces in the wrong location can attract more cars than the streets can fit. Good parking policy requires us to be thoughtful about the design, location and quantity of parking to manage its impact on the urban environment.



## Table: Matching progressive parking policies to different types of places

Different types of places will need different solutions, and these solutions will change over time

|  | On-street  | Off-street residential  | Off-street public and commercial   |
|--|--|---|--|
| <b>Emerging town centre (e.g. Norwest)</b>   | <ul style="list-style-type: none"> <li>Introduce timed parking</li> <li>Introduce residential permit scheme</li> <li>Include on-street car-share</li> </ul>                              | <ul style="list-style-type: none"> <li>Allow unbundled parking</li> <li>No minimum parking requirement</li> <li>Allow car-share in new developments</li> </ul>  | <ul style="list-style-type: none"> <li>Design new parking for future convertibility</li> <li>Introduce timed parking</li> </ul>  |
| <b>Growing town centre (e.g. Rouse Hill)</b> | <ul style="list-style-type: none"> <li>Shorten timed parking allowances</li> <li>Introduce some paid parking areas</li> <li>Expand the car-share network</li> </ul>                      | <ul style="list-style-type: none"> <li>Allow unbundled parking</li> <li>Set a maximum parking requirement within 800m of major public transport</li> <li>Require car-share within the same radius</li> </ul>  | <ul style="list-style-type: none"> <li>Shorten timed parking allowances</li> <li>Include car-share</li> </ul>  |
| <b>Mature town centre (e.g. Liverpool)</b>   | <ul style="list-style-type: none"> <li>Make all parking paid or permitted</li> <li>Expand the car-share network</li> </ul>   | <ul style="list-style-type: none"> <li>Require unbundled parking</li> <li>Set a maximum parking requirement for everywhere</li> <li>Require car-share in all new developments</li> </ul>  | <ul style="list-style-type: none"> <li>Introduce paid parking</li> <li>Include car-share</li> </ul>  |
| <b>Emerging CBD (e.g. North Sydney)</b>      | <ul style="list-style-type: none"> <li>Make all parking paid or permitted</li> <li>Expand the car-share network</li> </ul>   | <ul style="list-style-type: none"> <li>Require unbundled parking</li> <li>Reduce the maximum parking requirement</li> <li>Require car-share in all new developments</li> </ul>  | <ul style="list-style-type: none"> <li>Make all parking paid</li> <li>Make all parking subject to the Parking Space Levy (except for accessible and car-share spaces)</li> </ul> |
| <b>Growing CBD (e.g. Parramatta)</b>         | <ul style="list-style-type: none"> <li>Make all parking paid or permitted</li> <li>Remove certain parking to make more space for people</li> <li>Expand the car-share network</li> </ul> | <ul style="list-style-type: none"> <li>Require unbundled parking</li> <li>Reduce the maximum parking requirement</li> <li>Require car-share in all new developments</li> </ul>  | <ul style="list-style-type: none"> <li>Make all parking paid</li> </ul>  |
| <b>Mature CBD (e.g. Sydney)</b>              | <ul style="list-style-type: none"> <li>Make all parking paid or permitted</li> <li>Reduce parking supply over time</li> </ul>  | <ul style="list-style-type: none"> <li>Require unbundled parking</li> <li>Reduce the maximum parking requirement – in some cases the maximum should be zero</li> <li>Require car-share in all new developments where the maximum is not zero</li> </ul> | <ul style="list-style-type: none"> <li>Consolidate parking so some of it can be converted for different uses</li> </ul>  |

We organise our recommendations into three categories:

- I. Reducing the need to store cars
- II. Off-street parking
- III. On-street parking

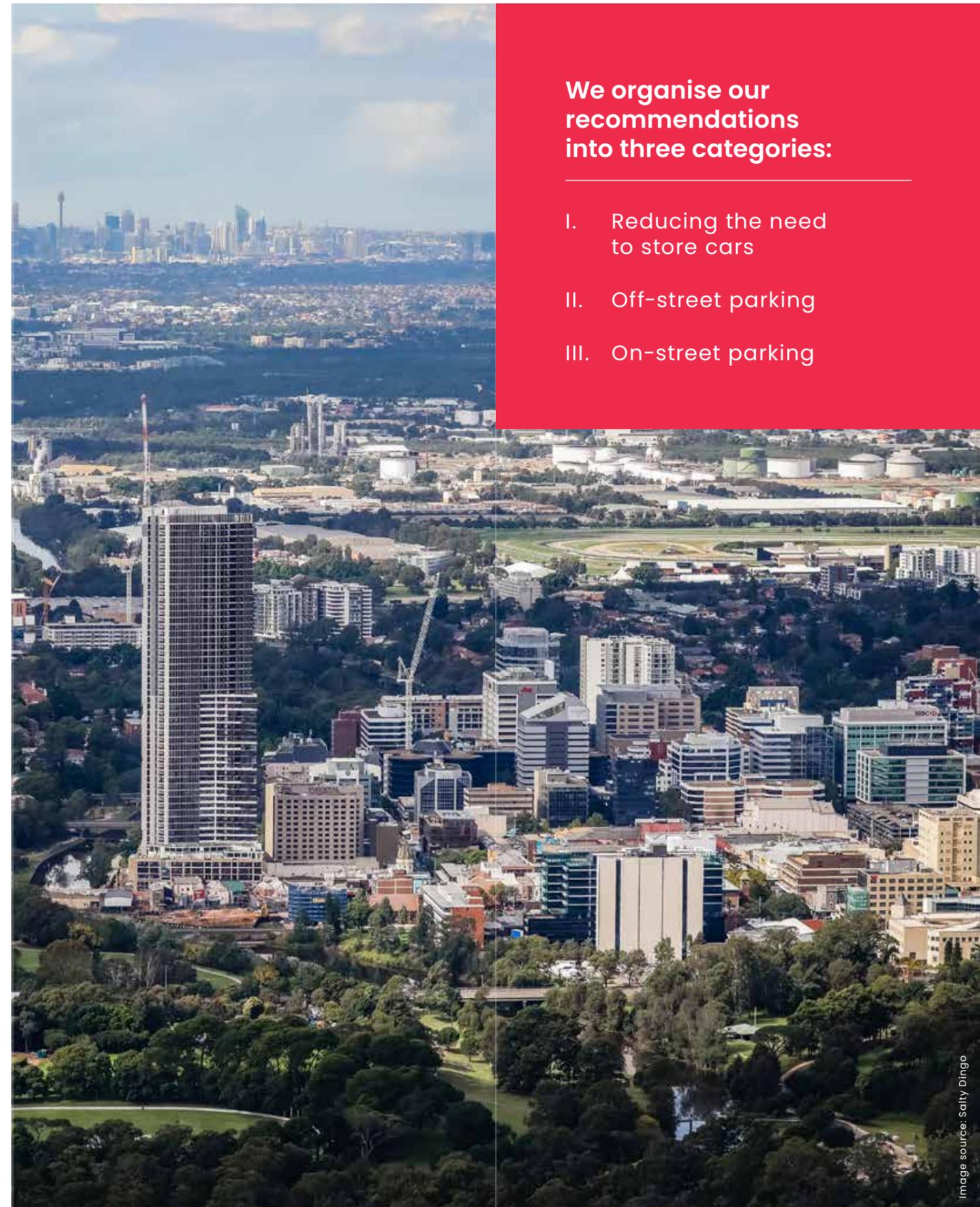


Image source: Salty Dingo





# 1. Create better alternatives to driving

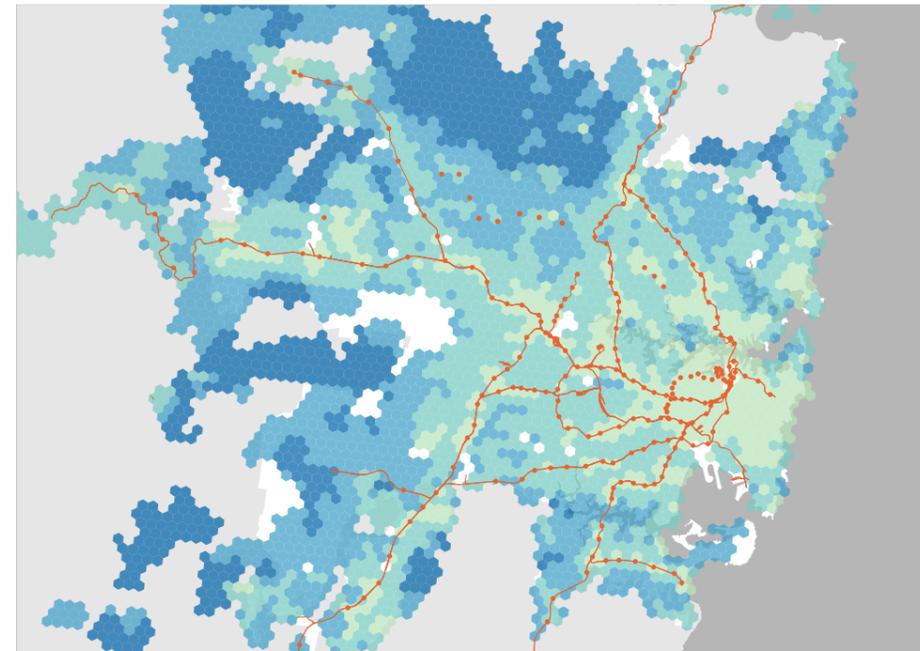
## The goal

Give more people more options for getting around without having to drive. Eventually everyone in Sydney should live in a walkable neighbourhood, connected by foot and bike paths, and within easy walking distance of frequent and reliable public transport options that can get them from 'anywhere to anywhere.'

## Why is this important?

Car dependent cities lock everyone into having to spend time in traffic and spend money on cars. Where spaces to park cars are provided at every destination, the supply of parking starts to take over the urban landscape. The very best parking management strategy is to make the alternatives to driving so good that people don't need to use cars as often. This requires prioritising the development of infrastructure for active and public transport.

## People own fewer cars the closer they live to a train station

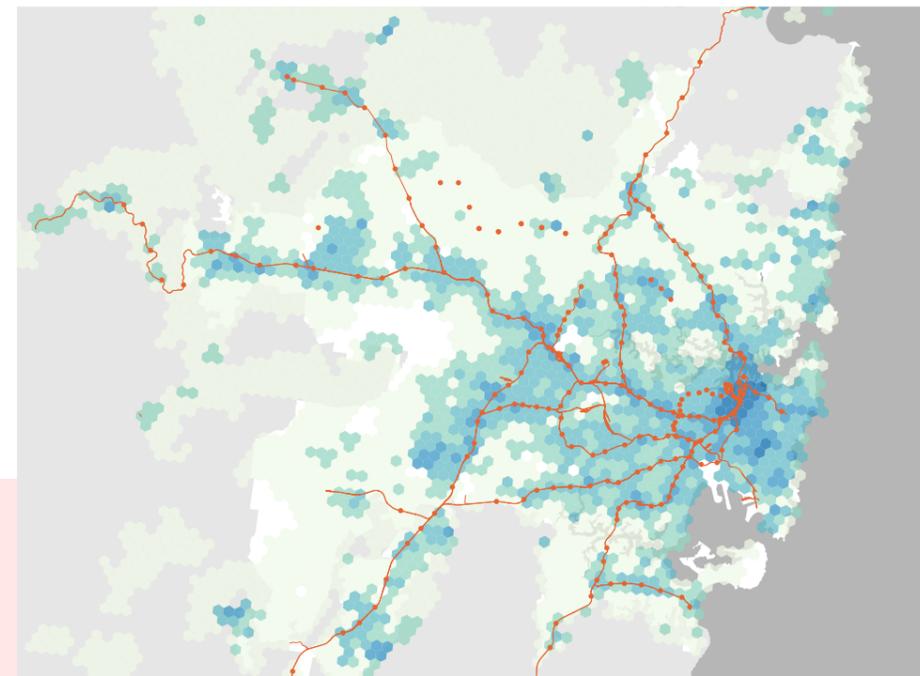


### Number of cars per household

Overlaid with Sydney Trains network

#### Cars per household

- < 1
- 1-1.5
- 1.5-2
- 2-2.5
- > 2.5



### Percentage of households without a car

Overlaid with Sydney Trains network

#### Households without a car

- < 5%
- 5%-10%
- 10%-20%
- 20%-40%
- >40%

Maps created by Kinesis.





**Actions**

**1.1. Continue to expand the Sydney Metro network**

By 2056, Sydney is set to be similar in size to London or New York City today.<sup>1</sup> The only way Sydney will remain liveable as it continues to grow is to build a rail network like other successful cities of that size have. An expanding Metro network, along with the longstanding standard gauge rail network, will achieve better coverage of more parts of Sydney and facilitate easy transfers between lines.

One of the great virtues of ‘networks’ is that as more nodes are added, the benefits increase for everyone. The next set of Metro lines has the opportunity to make many more parts of Sydney accessible without a car – connecting Western Sydney to itself, adding cross-cutting north south lines, serving places that are currently under-served.

**Lead agencies:** Transport for NSW, Sydney Metro, Cabinet for funding decisions

**1.2. Improve walking and cycling connections to rail stations and major bus stops**

Walking and cycling routes should be prioritised within a 1–2km radius of every Sydney train, Metro and light rail station, as well as major bus stops like those on the B-line. To make it easier for people to walk and cycle, we need:

- Wide footpaths
- Separated bike paths
- Raised priority crossings
- Priority for people at crossing at traffic lights
- Bike parking

Outside the 1–2km radius, feeder buses or shuttle buses, as well as on-demand or ride-share vehicles should service the area so people can more easily connect to public transport routes.

**Lead agencies:** Transport for NSW, local governments

**1.3. Develop rapid bus transit and on-demand services on key lines**

Identify a set of bus lines to be rerouted as frequent feeder services to key train, Metro or light rail stations, and a set of arterial bus lines that should be upgraded to rapid bus service levels like the Northern Beaches B-Line (this could be based on the Greater Sydney Services and Infrastructure Plan<sup>2</sup>). This will allow people who don’t live near a rail station to get around easily and reliably without a car.

The success of Keoride<sup>3</sup> in the Northern Beaches, which connects people from Palm Beach to North Narrabeen to the B-Line, demonstrates that on-demand transport can work well in areas that are underserved by public transport. In Sydney’s west, Cooe Busways<sup>4</sup> operates an on-demand service connecting people in The Ponds, Schofields and Kellyville to local train and Metro stations. The aim of such services should always be to transfer people to a major public transport route.

Arterial bus services should act as much like rail as possible, following the design intent of bus rapid transit<sup>5</sup> (BRT). This could mean boarding islands in the middle of the road, which is an international best practice for BRT, where there is no parallel rail transport option and where high passenger volumes are possible.

**Lead agency:** Transport for NSW





## Actions (continued)

### 1.4. Build out the bicycle network

Sydney needs to be safer, more convenient and accessible for cycling. This means building out a ubiquitous separated bicycle network. The recent rise of electric bikes has made cycling across Sydney’s relatively hilly terrain much easier.

Building an entire network of separated cycleways in Sydney would cost less than a single Metro line. Investment in cycling infrastructure is not only relatively cheap, it also enables a more efficient use of road space, improves air quality as people switch modes, and boosts people’s physical and mental health.

Transport for NSW should take responsibility to plan, design, fund and deliver a core network of arterial cycleways. These would be built largely on state roads and would be approved by the NSW Government.

Transport for NSW should also adopt a policy of supporting local governments whenever and wherever they choose to put in place cycleways on council roads. Transport for NSW should become an enabler and funder of these council-led improvements, adopting a posture of essentially never saying ‘no’ if a local council is willing to take the political heat to put in a cycleway.

**Lead agencies:** Transport for NSW, local governments

### 1.5. Make it nicer and easier to spend time on local high streets

Being able to walk to local shops for life’s necessities, and simply enjoy city life, is one of the great pleasures of high-functioning neighbourhoods. Sydney was originally developed on just this pattern, with high streets serving as centres of community life.

A key strategy for creating high-amenity, low-stress living is to prioritise public space over traffic on Sydney’s high streets.

In some places there are difficult trade-offs to make between accommodating traffic and making great places. But on high streets, the answer is clear: these streets should be prioritised for pedestrian comfort.

A comprehensive program to improve high streets should include:

- Removing clearways – an essential step we will return to later
- Slowing traffic speeds to 30km per hour where possible
- Widening footpaths
- Adding pedestrian crossings
- Adding raised crossings for people walking across side-street intersections
- Supporting parklets
- Enhancing amenity through landscaping, shading and seating.

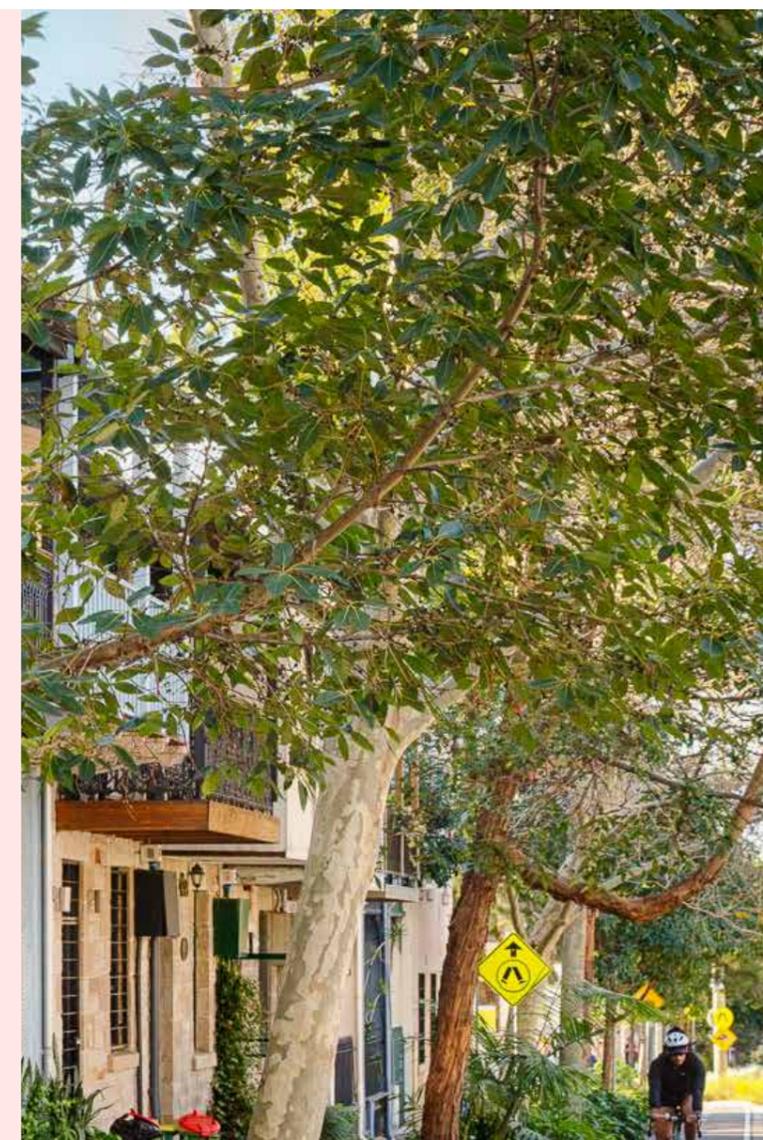
**Lead agencies:** Transport for NSW, local governments

### 1.6. Adopt a mode share target

Mode share targets are useful as they guide effort, attention and investment. Creating a clear target for what the mode split should be in the future, along with measures to achieve the target, will also focus road space allocation strategies and policies.

Implementing a mode-share target as an overarching key performance indicator for Transport for NSW could help align the sometimes incongruous outcomes sought by traffic engineers and place makers. In particular, it could clarify where and why the throughput of cars in certain places needs to be deprioritised, with the throughput of active and public transport being the highest priority.

**Lead agencies:** Transport for NSW, Greater Cities Commission, Infrastructure NSW



We suggest a future mode share target for trips to work in Sydney could be:

| Mode          | Current mode share in Sydney* (% of trips to work that involve leaving home) | Proposed future mode share target for Sydney (trips to work) |
|---------------|--|--|
| Car           | 65.2%  | 40%  |
| Train         | 18.6%  | 30%  |
| Bus           | 7%   | 11%  |
| Tram or ferry | 0.5%   | 2%   |
| Walk          | 4.6%   | 9%   |
| Bicycle       | 0.8%   | 5%   |
| Motorbike     | 0.7%   | 0.7%   |
| Truck         | 0.9%   | 0.9%   |
| Other         | 1.2%   | 1%   |

Image source: Ja La Photography



CASE STUDY:

# London's mode-share target

## Summary

- London's mode-share target is for 80% of all trips to be made on foot, by bicycle or using public transport by 2041.
- The target is part of the Mayor's Transport Strategy 2018, which aims to create a more liveable city that is fairer, greener, healthier and more prosperous.
- At the time the target was set, 63% of all trips in London were made by foot, by bicycle or using public transport.



## Strategies to achieve the target

- Improving street environments to make walking and cycling the most attractive options for short journeys.
- Providing more, and better, services to make public transport the most attractive option for longer ones.
- Ensuring any regeneration or new development adheres to these principles:
  - Good access to public transport
  - High-density, mixed-use developments
  - People choose to walk and cycle
  - Car-free and car-lite places
  - Inclusive, accessible design
  - Carbon-free travel
  - Efficient freight.
- Using the Healthy Streets Approach as a framework, which puts human health and experience at the heart of planning the city.

## Why it matters

- Setting a mode-share target is essential to focus government strategies to increase the share of active and public transport trips, and reduce the share of car trips.
- Shifting Sydney's mode-share will improve public health outcomes and reduce the city's carbon emissions.

Image source: Flickr, Garry Knight



CASE STUDY:

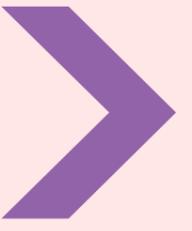
# City of Canterbury-Bankstown shifting mode-share

## Summary

- The Bankstown and Campsie Master Plans propose a series of actions to promote mode shift by encouraging active transport use in the respective strategic centres.



Image source: City of Canterbury-Bankstown Council



## Proposed actions

- Adopt maximum parking rates within a 400m radius of the future Bankstown and Campsie Metro stations in business zones.
- Adopt reduced minimum and upper maximum parking rates outside the 400m radius of the future Metro station.
- Introduce a Development Control Plan provision to enable unbundled parking within new developments.

## Why it matters

- The proposed minimum and maximum car parking rates correspond to the high public transportation accessibility of these centres, and are therefore designed to encourage the use of active transport through induced travel demand.
- Amendments to the minimum and maximum car parking rates could improve development viability and housing cost, especially if that parking is unbundled, offering greater flexibility for home purchasers.



## 2. Accelerate the switch to car-sharing and ride-sharing

### The goal

Provide as many people as possible in Sydney with access to a car when they need one, without having to own and store one.



### Why is this important?

Car-share (e.g. GoGet or Car Next Door) is perhaps the most direct way to reduce local parking pressures, with a major side benefit of reducing household costs by making it possible for some households to either not own a car or go from two cars down to one.

Car-sharing is a form of Mobility as a Service, where members pay to use a car only for the time and distance they drive. Car-sharing dramatically reduces the amount of space devoted to storing cars – with one car-share vehicle on a street replacing 10 privately owned vehicles<sup>7,8</sup> – as members tend to sell their primary or secondary car, or defer car purchase altogether.

The benefits of car-share include:

- One car-share vehicle frees up nine vehicles' worth of street space, as well as stopping the CO2 emissions that would have been released from producing those nine vehicles.
- When households become car-share members, they typically reduce their annual vehicle kilometres travelled (VKT) up to half – as car-share members pay a fee every time they use a vehicle, they tend to shift their mode choice from the car to active or public transport for more trips.
- Car-share vehicles are typically newer than the private vehicle fleet, making them safer and more environmentally friendly.

- For people who drive less than 8,000 km per year (equivalent to 21 km per day), car-share is cheaper than owning a private car,<sup>9</sup> and so reduces the cost of living for those households.
- Car-share can enable more affordable housing, as it reduces the cost of apartments by replacing the need for underground car parks.

Like car-sharing, ride-share (e.g. Uber) also reduces the need to own or store a car. People can book trips in real-time with a driver that will take them from A to B. Ride-share has the added benefit of being convenient for one-way journeys, which can include getting to or from public transport stations.

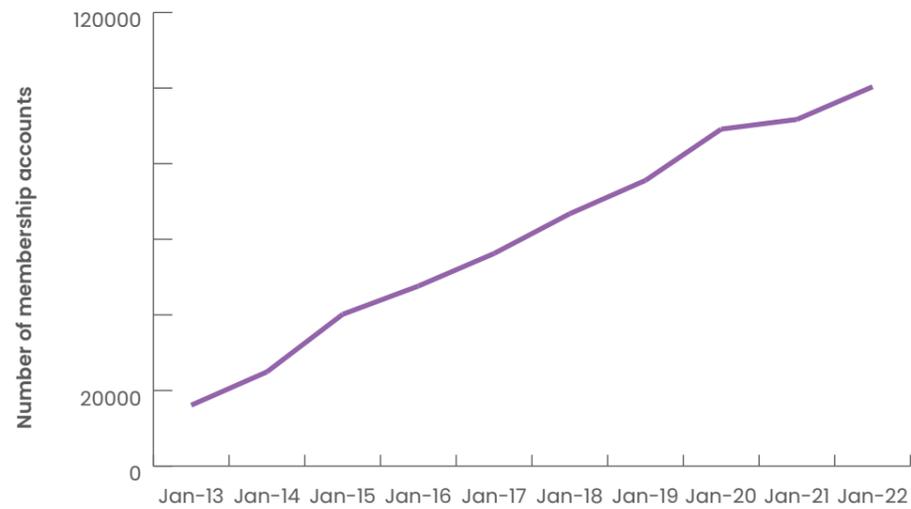
The net effect of moving to ride-sharing and car-sharing is to provide people with a car when they need it without them having to store it – a very direct way to require less parking.



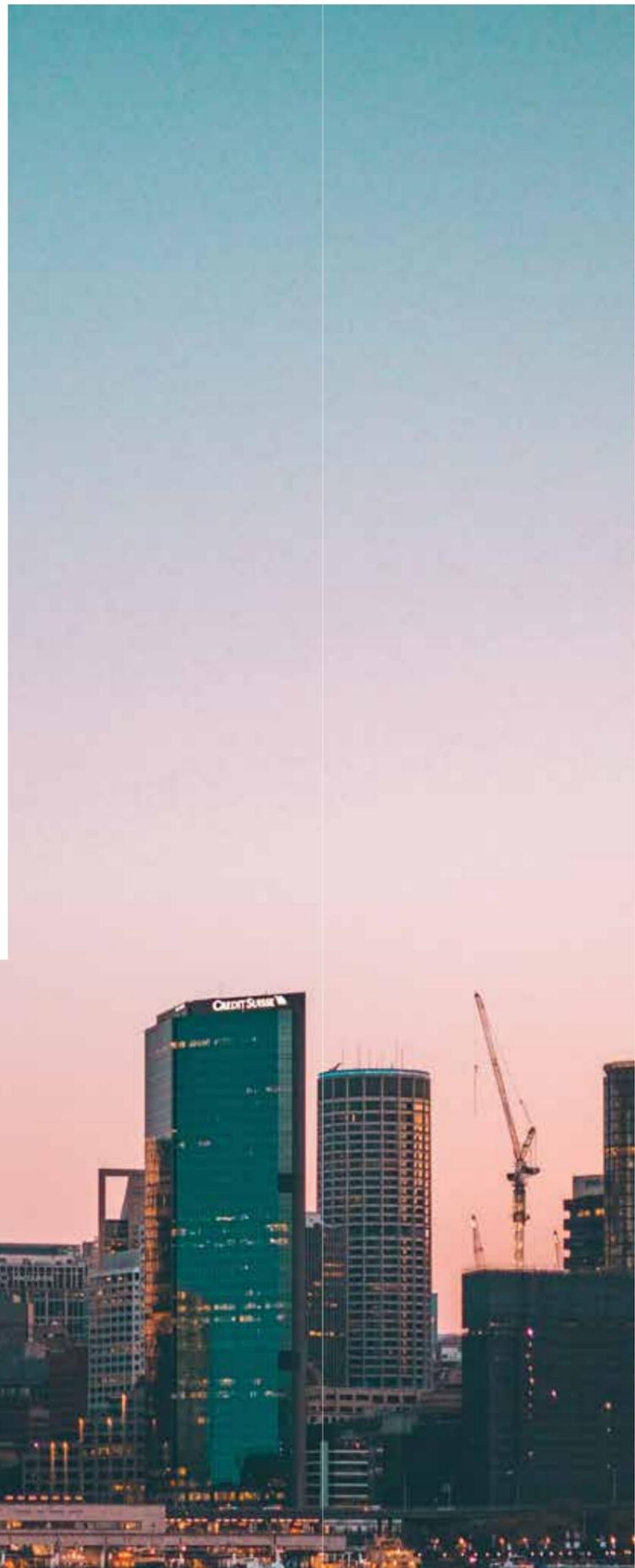


# Demand for car-share is increasing in NSW

GoGet has more than 100,000 membership accounts – there can be more than one registered driver per account.



Data source: GoGet



## In parts of Sydney, 10–30% of residents use car-share

Percentage of licensed drivers that hold a GoGet membership by local government area



Data sources: GoGet and Transport for NSW

## Car-share can save households money

People save money by switching to car-sharing if they drive less than 8,000 km a year. As car-share members reduce their annual VKT by up to 50% they often save even more money than indicated by this like-for-like cost comparison.

Cost comparison of Toyota Corolla – ownership vs GoGet Car-share<sup>10</sup>

| Annual distance travelled by car | Average daily distance travelled by car | Private ownership per annum | GoGet GoFrequent Plan per annum | Household savings from car-share per annum |
|----------------------------------|---|-----------------------------|---------------------------------|--|
| 3,000 km                         | 8.2 km                                  | \$6,697                     | \$3,120                         | \$3,577                                    |
| 6,000 km                         | 16.4 km                                 | \$7,036                     | \$5,090                         | \$1,946                                    |
| 8,000 km                         | 21.91 km                                | \$7,375                     | \$6,670                         | \$705                                      |





**Actions**

**2.1. Include on-street car-share as a priority in Transport for NSW plans**

Transport for NSW can help make sure everyone has access to car-share spaces. There are many locations throughout Sydney with a higher demand for car-share than the current supply.

Car-share should be included in one of the Transport for NSW ministerial portfolios. Instead of various and scattered local car-share policies, Transport for NSW should prioritise car-share in strategic plans to ensure an even and equitable network. This would also simplify the application process, permits, regulations and fees for car-share operators.

**Lead agencies:** Transport for NSW, car-share providers, local governments

**2.2. Provide car-share spaces at all rail stations in Sydney**

Rail stations are great locations for car-share vehicles. They serve as hubs for communities already; adding car-share vehicles will make it easy for people to transfer between modes, not to mention, they are simply a good central location to serve the broader neighbourhood. To really drive uptake, Transport for NSW should have a policy of providing car-share spaces at every rail station with parking in Sydney.

**Lead agency:** Transport for NSW

**2.3. Require car-share in all new developments near rail stations in Greater Sydney**

Including car-share in new developments near rail stations will remove the need to build as much below-ground parking – reducing building costs while improving housing affordability.

Car-share spaces in residential developments should be accessible to all car-share members – i.e. not exclusive to residents. This increases the amenity of new developments for both residents and the community and improves viability of the space for car-share providers.

**Lead agencies:** Transport for NSW, Department of Planning and Environment, local governments, car-share providers

**2.4. Allow developers to reduce the parking rate if they include car-share**

If minimum parking requirements remain in place, developers building in any location in Sydney should be allowed to reduce the parking rate of a building by 10 spaces for every one car-share space contracted to an authorised provider. The NSW Land and Environment Court has previously ruled that minimum parking requirements for a development can be reduced with the inclusion of car-share.<sup>11,12,13</sup> As per above, car-share spaces should be accessible to all car-share members – not exclusive to residents.

**Lead agencies:** Department of Planning and Environment, local governments, car-share providers

**2.5. Exempt car-share from the Parking Space Levy**

The Parking Space Levy, which applies to all off-street parking in Sydney’s city centres, is designed to discourage people from driving into the city. Car-share is not exempt from the levy in NSW, which makes city locations unviable for providers. We recommend car-share be exempted from the Parking Space Levy, as in Victoria’s equivalent Congestion Levy.<sup>14</sup> This would mean carpark operators and car-share providers do not pay the levy on spaces leased for car-share use.

This change would help those who live and work in locations where the levy applies to access car-share.

**Lead agency:** Transport for NSW





CASE STUDY:

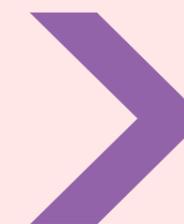
# Car-share and public transport integration in NSW

## Summary

- Inner West Council and GoGet partnered to deliver Australia’s first integration of car-share and public transport in 2019. Dedicated car-share spaces were installed at 11 light rail stops between Dulwich Hill and Lilyfield. Following a successful 18-month trial, the spaces were made permanent.
- In April 2022, Transport for NSW and GoGet partnered to run a six-month trial integrating three car-share vehicles, including one wheelchair accessible vehicle, at Katoomba train station.



Image source: Flickr, nzslearn



## Usage

- Around 75% of the bookings at light rail stations are made by local residents, with the remaining quarter by people living in other local government areas.
- Since installation, each vehicle at a light rail station has been used by almost 70 unique members and can get booked up to 50 times per month.
- Based on the first month of usage, around a quarter of the bookings at Katoomba station are made by Blue Mountain’s residents, with the other three quarters made by people living in other local government areas.
- In the first month, more than 3,000 vehicle kilometres and 800 kgs of CO2 were avoided by people catching the train to Katoomba, rather than driving.

## Why it matters

- If people need to get somewhere that is not well serviced by public transport, they are likely to drive the whole way. Integrating car-share with public transport gives people the option to split their journey, driving fewer kilometres and reducing carbon pollution.



CASE STUDY:

# Sydney residential developments with car-share

## Summary

- It is becoming more common to see car-share in new residential developments.
- GoGet vehicles are available in more than 65 residential developments in Sydney.
- The largest car-share pod in Australia is at Central Park, Chippendale, where 50 GoGet vehicles are used by more than 700 residents and the public. Half the apartments in Central Park do not have a private parking space.

## Many councils require or permit car-share in new residential developments

- Councils that require car-share in all new developments (except for single dwellings):
  - City of Sydney
- Councils that require car-share in new developments at certain locations, or of certain size:
  - City of Parramatta, City of Ryde, Hornsby Shire Council, Inner West Council, Lane Cove Council, Northern Beaches Council, Randwick City Council, Waverley Council
- Councils that permit car-share in new developments:
  - City of Canada Bay, Liverpool City Council, North Sydney Council, Woollahra Council.

## Some developers choose to provide car-share spaces

- “Early on in our planning, we saw the value of having a car sharing facility at Imperial Hurstville and feedback from buyers reconfirmed this thinking, so we’ve included this in our sales and marketing” – *Peter Munnings, General Manager at Piety THP.*
- “Many first home buyers of one-bedroom apartments don’t own a car or have access to a car space but they do want the convenience of a car from time to time. Having GoGet [car-share] at their doorstep gives residents the financial and environmental benefits of freedom from car ownership, while giving them ready access when they need it” – *Graham Cooper, Development Director at Mirvac.*
- “We have seen more enquiries from first home buyers looking at one-bedroom options without a car space for a lesser price... A dedicated underground parking space could add up to \$100,000 to the cost of a new home... That extra cost, combined with the costs of purchasing and maintaining a car, are much greater than taking public transport or using car-share services” – *Nigel Edgar, General Manager at Frasers Property.*
- “In terms of customer value, we see this type of offering [car-share] right in line with home automation, integrated appliances and the high-end fixtures and fittings... If companies like mine aren’t exploring innovations like this, we are holding the next generation back when it comes to flexible and sustainable living” – *Luke Berry, Director at Thirdi Group.*

## Why it is important

- Car-share reduces the cost to build apartments, as less space is required for parking.
- Buildings with less underground parking have lower embedded carbon emissions.
- For people living in well-connected neighbourhoods with various transport options, the availability of car-share can reduce household expenditure, as people have access to a car without having to own, maintain and store one.
- These developments bring a new transport amenity to the local area, as cars are accessible to all car-share members, not just residents.





CASE STUDY:

# Car-share across Greater Sydney

## Summary

- Car-share operates across Greater Sydney, not just in areas considered ‘inner-city’
- In many cases, car-share replaces ownership of a second or third vehicle, rather than replacing car ownership all together.



## The broader car-share network

- GoGet operates well-utilised car-share in:
  - Hills Shire Council (since 2015): ~20 car-share vehicles are used by almost 1,500 local members
  - Hornsby Shire Council (since 2018): ~30 car-share vehicles are used by almost 2,000 local members
  - Liverpool City Council (since 2019): ~20 car-share vehicles are used by almost 1,000 local members.

## Why it matters

- Sometimes we assume car-share only works in areas that already have low rates of car ownership, but there is also demand for car-share in areas with high rates of car ownership.
- Giving people access to a car when and if they need it means people don't need to own a second or third car, which they might only use occasionally.

Image source: GoGet



## II. Off-street parking





### 3. Reduce commuter parking in places trying to become major CBDs



#### The goal

Reduce the number of cars entering CBDs each day so street space can be repurposed for people.

#### Why is this important?

While it may be counter-intuitive to think we will improve a CBD by making it harder to drive there, the truth is we will. CBDs simply cannot work if everyone brings their own car. The road network required to get all the cars in would ruin public space outcomes and push destinations apart.

CBDs need to work differently from other parts of Sydney. We are not just trying to accommodate extremely high densities, we are also trying to provide a distinctive, compelling experience – something more akin to a European public space culture. CBDs are already the best-connected locations in Sydney, and over time we should be adding more and more ways to get into our CBDs without a car (by adding rail lines and cycleways), and at the same time reducing the space for cars.

The Sydney CBD has begun this transformation over the last decade. Slower traffic speeds, light rail and the pedestrianisation of George Street have dramatically improved public space and supported more people to walk in the city centre. But more can be done on other streets to improve the experience of walking.

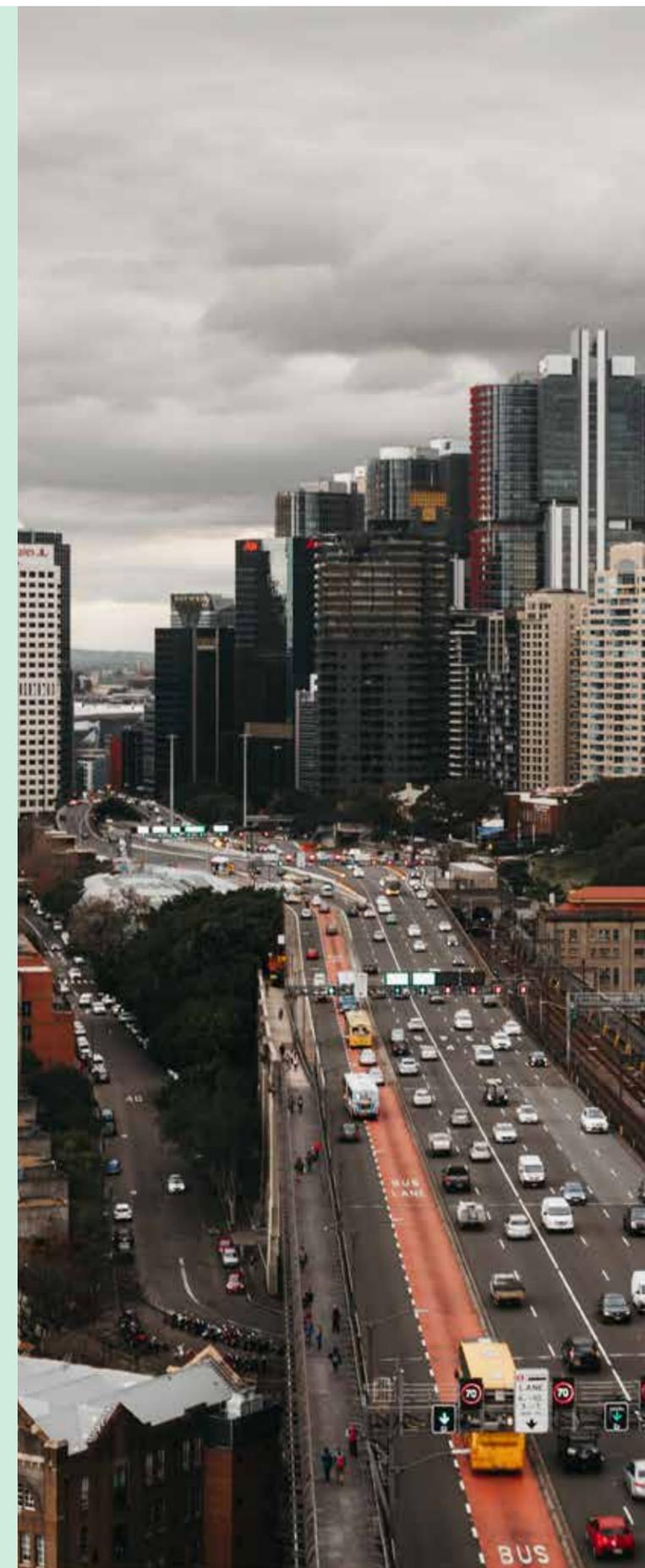
Parramatta CBD has also begun a transformation with the pedestrianisation of Church Street, construction of light rail, and development of Parramatta Square. But with so many carparks and major roads cutting through its heart, much more needs to be done.

To become a major CBD, Parramatta needs to make a choice about how much parking to provide. Currently, there is one parking space for every 1.8 workers, compared to Sydney CBD which has one space for every six workers.<sup>15</sup> If Parramatta continues to provide parking at this rate it will not become a major CBD.

Parramatta should look to optimise the existing parking supply, not increase it. The Parramatta CBD Parking Strategy takes steps in the right direction, setting shorter time limits, higher prices, and dynamic demand-based pricing in certain locations. However, other parts of the strategy, specifically those that seek to increase parking supply, undermine the CBD's growth aspirations.

Other major centres, such as Liverpool or Campbelltown, may have ambitions that require them to reclaim space in their central areas from cars and convert it to public space. Real CBDs all over the world work by concentrating people and activities at high densities. This is only possible if most people are getting in and out without a car.

Local governments don't have control over all the parking in their area, with many privately operated carparks dotted throughout CBDs. NSW Government may consider legislative reform to give local governments more power and influence over pricing and supply of parking in privately-operated (but publicly accessible) carparks. This would give councils more agency to achieve their strategic and transport planning goals of reducing private car use.





## Actions

### 3.1. Do not allow new standalone parking facilities to be built in the Sydney and Parramatta CBDs

Standalone parking facilities are the least efficient use of space in a CBD. They have terrible outcomes for the street, with inactive frontages and cuts to the kerb for vehicle access.

The City of Sydney Local Environment Plan (LEP) makes it very difficult to build a new standalone carpark in the CBD. But the legislation does allow new carparks for commercial industries that only offer short stay parking and are not adequately serviced by public transport.<sup>16</sup> While it's hard to imagine any location in the CBD could be considered underserved by public transport, we think there may be scope to strengthen the rules against new carparks.

The City of Parramatta LEP does not include any conditions that restrict the development of new standalone parking facilities. We suggest they should also be updated to restrict or prohibit new parking facilities in the commercial and mixed-use core.

Despite public perception that parking demand in Parramatta exceeds supply, the latest data shows an average carpark occupancy rate of 65% on weekdays and only 13% on weekends.<sup>17</sup> Although three standalone parking facilities in the Parramatta CBD were recently closed – to make way for the Metro and light rail – newly built public carparks have clawed back some of the lost supply. City of Parramatta should now cap the current parking supply, so it does not increase further.

Other councils with aspirations to grow their CBDs may consider strengthening their planning laws to preclude the development of new standalone parking facilities.

**Lead agencies:** City of Parramatta, City of Sydney

### 3.2. Reclaim streets in CBDs for public space

We can transform our CBDs to be better places for people if they are not still dominated by cars. Councils wanting to grow their CBDs should begin the process of reclaiming streets for public space, by doing things like:

- Widening footpaths
- Slowing traffic speeds
- Installing more pedestrian crossings, or prioritising pedestrians at crossings
- Removing one-way streets and reinstating two-way streets
- Installing parklets and verge gardens

The commercial centres of our cities provide places for special kinds of public life to take place: window shopping, chatting with friends, sitting at a café, simply enjoying city life. The streets are where the life of great cities happen, so long as the streets are designed as places to be, rather than (only) places to move through.

**Lead agencies:** Transport for NSW, Department of Planning and Environment, City of Parramatta, City of Sydney

Image source: Shutterstock





## 4. Optimise parking facilities at suburban rail stations

### The goal

Channel Sydney's growth into the areas around rail stations, while continuing to intercept car drivers at commuter carparks so they can connect to public transport for part of their trips.

### Why is this important?

Rail stations provide the most logical places for Sydney's growth over the coming decades. Putting housing, jobs and community facilities there means people can access these things without driving – in contrast to traditional sprawl, which forces people to drive for everything.

At the same time, commuter carparks are the only realistic way for people who are starting their commute in a low-density location to be able to access public transport. It is important to intercept these trips and move them onto public transport for at least part of the journey.

So we have a dilemma: commuter carparks are not the best use of land around rail stations, but we do need them. This is a planning issue that does not have an easy resolution. It requires careful, place-specific analysis and thoughtful consideration about where exactly the parking is located.

While there is no silver bullet solution, we suggest two key planning moves to help determine the location of commuter carparks:

1. Do not have surface parking lots within walking distance of train stations – commuter parking should be in multi-level structured parking to take up the least space possible, creating room for other land uses nearby.
2. Do not place commuter parking in the middle of a town centre – the best stations for commuter carparking facilities are those with motorway access nearby. Town centres should continue to evolve as pedestrian-oriented areas.

Commuter carparks may in some cases be designed and built with the flexibility to be converted for different uses in the future. If we continue to build more Metro lines, as well as increase residential density around rail stations, it is likely we won't need as much commuter parking. If this is the case, the carparks could be converted into office, retail or residential space.





## Actions

### 4.1. Plan for higher densities around rail stations

Putting higher densities around major rail stations will mean more people in Sydney live and work within walking distance of this wonderful public transport resource – creating walkable, sustainable neighbourhoods with reduced traffic and parking pressures.

Many parts of Sydney need to come together to make this happen:

- The Greater Cities Commission and Department of Planning and Environment should establish growth targets for stations and hold local councils accountable to achieve them.
- Governments should fund the local infrastructure, amenity and public space in station precincts to make sure they can truly support high quality growth.
- Where there are significant government land holdings, NSW Government should take the lead, and sometimes create special purpose delivery agencies.

**Lead agencies:** Greater Cities Commission, Transport for NSW, Department of Planning and Environment, local governments

### 4.2. Redevelop surface parking lots

Wherever there are surface parking lots near rail stations, they should be redeveloped. This will usually start with building structured parking to consolidate the spaces in a smaller footprint.

As we know, the cost to construct multi-deck parking isn't cheap. But the benefit of freeing up land for higher uses far outweighs this cost. By constructing multi-deck parking, more parking spaces can be provided in a much smaller space, freeing up land to be redeveloped for jobs, housing or community uses. Therefore, funding should be prioritised to condense surface carparks owned by Transport for NSW and local governments in station area precincts.

It is important to remember that multi-deck parking doesn't have to be an urban blight. The sixth recommendation in this paper outlines design principles for multi-deck parking that is better for the community.

**Lead agencies:** Transport for NSW, Department of Planning and Environment

### 4.3. Charge for commuter parking, even if it's only a small amount

Charging for parking is not popular; it goes without saying people would rather have something be free, but there are good reasons to charge. It can create revenue for other public goods, cover maintenance costs, and offer a small incentive for people not to drive. Charging for commuter parking also means ratepayers in one local council aren't paying for the maintenance of a commuter carpark used by people who may live in another council area.

Transport for NSW owns more than 50 major commuter carparks in metropolitan Sydney (100–2,000 spaces per carpark), most of which provide unconditional free parking. 13 of these carparks are 'Park&Ride' facilities that only offer free parking if you complete a public transport trip with your opal card. Many council-owned carparks in Sydney also offer unlimited or time-limited free parking.

We suggest Transport for NSW and local governments should always charge for parking, even if it's only a small amount. Examples from cities around the world show public support for paid parking is possible. This has been achieved by creating transparent revenue streams that fund public improvement projects, such as bike paths, street trees and furniture, and widened footpaths.

**Lead agencies:** Transport for NSW, local governments



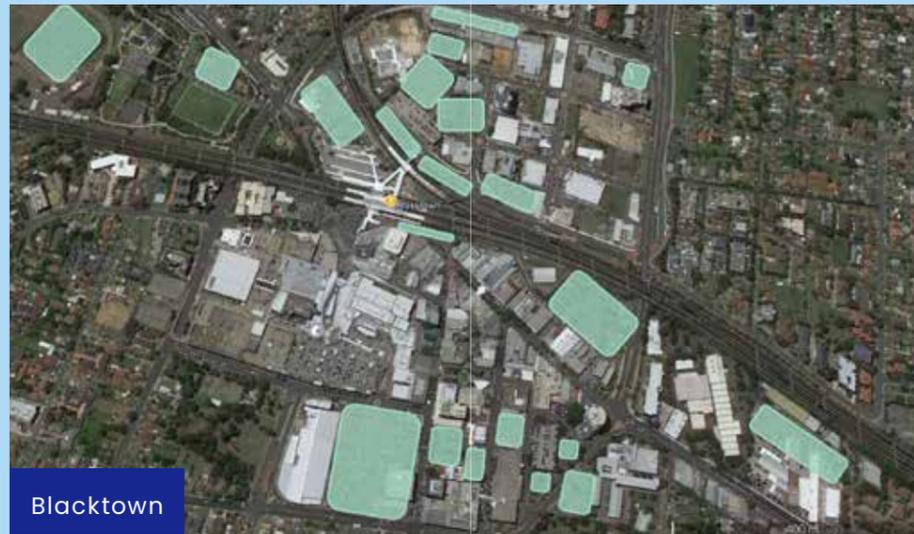


CASE STUDY:

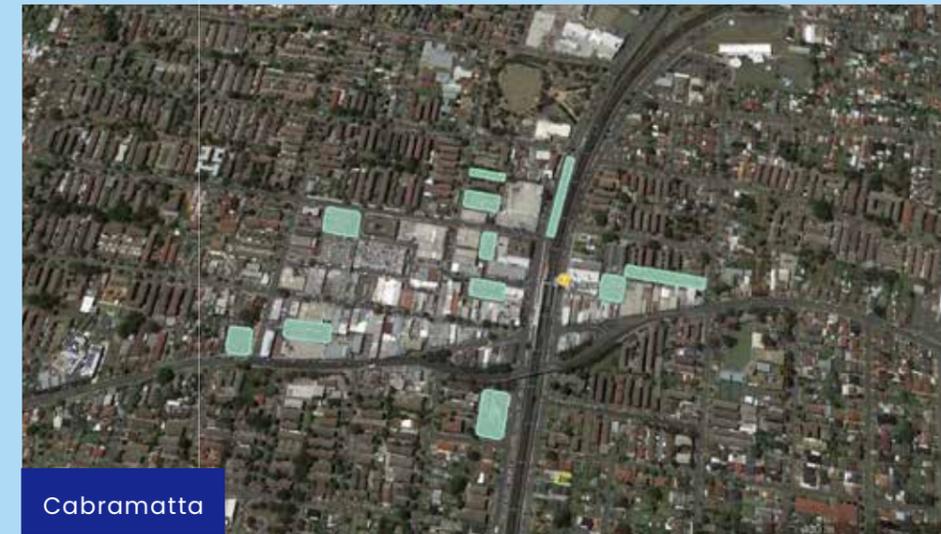
# At-grade surface parking in Sydney that could be redeveloped



Bankstown



Blacktown



Cabramatta



Campbelltown



Liverpool



Penrith

Image source: Google Earth

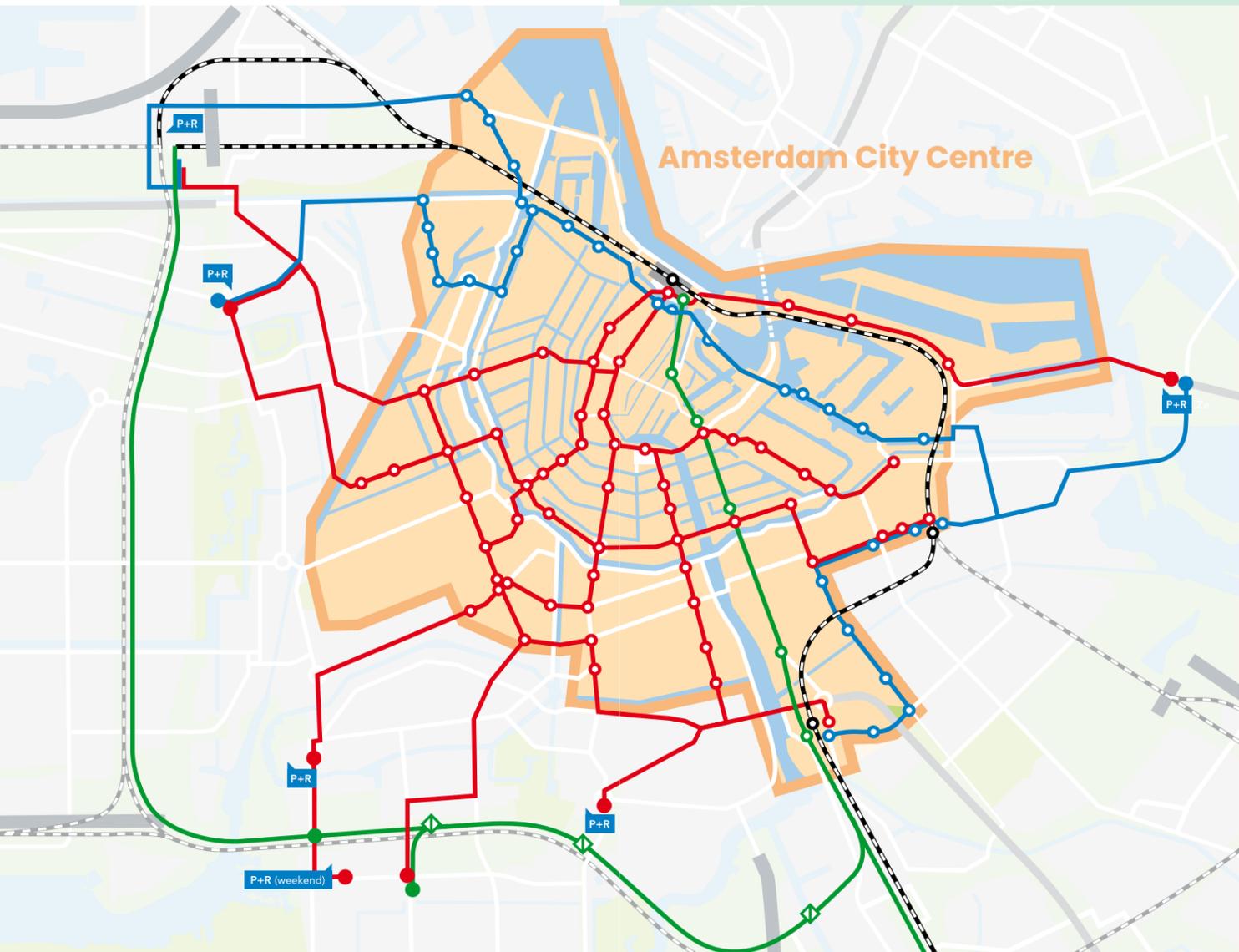


CASE STUDY:

# Amsterdam 'Park and Ride'

## Summary

- Park and Ride facilities at Amsterdam's periphery train stations have reduced the number of cars, and need for parking, in the city centre.



## Background

- Amsterdam, now known as one of the world's best cycling cities, was severely car dominated between 1950 and 1990.
- Parking and traffic were once so bad that proposals were made to fill in canals to create more road space.
- Over the last 30 years, the City of Amsterdam has implemented various strategies to reduce parking demand, as well as the number of cars in the city.
- Key to limiting the number of vehicles in the city are Amsterdam's Park and Ride facilities located at peripheral train stations near the A10 ring-road.

## Implementation

- Amsterdam introduced a new traffic management policy, which included the development of these peripheral Park and Ride facilities in 1994.
- When the additional off-street parking spaces were created with Park and Ride, the equal amount of on-street parking was removed from the city.
- Users pay only €1-8 per 24 hours with proof that they've made a round-trip journey to the city. Using a Park and Ride facility also gets you discounted train tickets for up to five people travelling to the city.
- Revenue from Park and Ride flows into the Amsterdam Mobility Fund, which is used to pay for public and active transport infrastructure.

## Why it matters

- Park and Ride facilities helped enable the transformation of Amsterdam's city streets into places for people by reducing the number of cars that drive in each day.
- Revenue from the facilities is used to pay for things that make neighbourhoods more liveable.





## 5. Let the market decide how much parking to build in residential developments



### The goal

Reduce the cost of development, to help make housing more affordable, and future-proof buildings for coming changes to mobility.

### Why is this important?

Each basement parking space in Sydney costs between \$50,000 and \$250,000 to construct. Typically, the deeper the carpark, the more expensive it is to build, especially if the water table is high. If we can eliminate some of this cost, we could improve housing affordability in Sydney.

In addition, it is likely car ownership rates will decline in the future, as people move to pay per use car access (car-share and ride-share), which will be less expensive when autonomous vehicles eliminate the cost of a driver. Reducing parking in new developments is a way to future-proof them.

Currently, 80% of local councils in Sydney have off-street parking ratios that exceed current car ownership rates.<sup>18</sup> This means we already have the capacity to build less parking. How much parking is needed is always location specific, so allowing the market to determine parking rates will be more efficient than regulations which become outdated quickly as Sydney grows.

### Actions

#### 5.1. Remove minimum parking requirements in new development

Minimum parking requirements have led to more parking being built than is needed. This means some people are paying for parking they don't use, which has unintended negative consequences for housing affordability.

Transport for NSW needs to abandon the assumption that minimum parking requirements prevent a spillover of parked cars onto the street. This assumption is embedded in the Guide to Traffic Generating Developments,<sup>19</sup> which states recommended parking requirements are necessary to maintain the existing levels of service and safety of the road network. However, spillover can be prevented or solved by on-street parking controls and permit schemes (see recommendation 10.3), as demonstrated by parking policies in City of Sydney and Waverley councils.

Current minimum parking requirements, combined with the outdated Guide to Traffic Generating Developments, cause many development applications to be knocked back based on an assumed increase in car traffic volumes. For developments near train stations and other modes of public and active transport, these assumptions are generally overstated. Sydney should be increasing density around rail stations, not prohibiting it. To do this, minimum parking requirements should be removed and the Guide to Traffic Generating Developments updated.

By removing minimums, developers will still build parking where they think it's needed, but if they believe there is a market for car-free housing, government should not stand in the way.

**Lead agencies:** Department of Planning and Environment, Transport for NSW, local governments





## Actions (continued)

### 5.2. Set parking maximums for new developments in transport-rich, walkable locations

Local governments wanting to improve the walkability and public place outcomes of certain neighbourhoods may want to set parking maximums for new developments.

The City of Sydney, North Sydney and Waverley councils have all implemented maximum parking rates for all types of new development within their areas. Several other councils have implemented maximum parking rates for certain types of development, or development in particular locations, but have kept minimum parking requirements for other locations.

Around the world, cities are shifting from minimum to maximum parking requirements. In the same way that building more roads leads to higher traffic volumes, it is now recognised that building more parking leads to higher rates of car ownership. New parking supply does not ease the pressure of parking demand, it creates more demand.

**Lead agencies:** local governments

### 5.3. Unbundle the price of parking from the price of the housing unit

Unbundled parking means buying or renting a home separately to buying or renting a parking space – rather than the cost of both being bundled together. Unbundled parking has become the standard in global cities like San Francisco<sup>20</sup> and Tokyo,<sup>21</sup> making the cost to construct, maintain and purchase parking more transparent to buyers.

Unbundling parking means the above costs are not subsidised by those who do not want, or need, to own a car – improving housing affordability for some and allowing the market to give a clear indication of parking demand. This should only be required for apartments and multi-dwelling housing, not single dwelling homes.

**Lead agencies:** Department of Planning and Environment, property developers

### 5.4. Create precinct parking at major new developments

Precinct parking is a way to reduce costs and improve walkability. A major benefit of precinct parking is removing the need to build underground parking beneath each development, which reduces the cost of construction. In addition to saving money, the urban design is better and kerb cuts are reduced – creating a continuous footpath without obstacles to people walking.

Precinct parking is easiest to implement in mega developments where there is a single developer, but the concept may be explored as a broader solution for precincts that are undergoing significant development with multiple developers. In this case, the parking may be government-owned, with developers or residents charged a fee to use the spaces.

**Lead agencies:** Department of Planning and Environment, Transport for NSW, property developers



Image source: Mirvac



CASE STUDY:

# Waverley Council maximum parking requirements



## Why it matters

- Parking reforms can be supported by the community, especially when they are introduced along with other measures to increase transport options.

## Summary

- Waverley Council reformed off-street parking requirements in 2018, introducing maximum parking requirements, with a minimum requirement of zero, for all new developments.
- As part of the reform, parking areas were consolidated into two zones:
  - Zone one – within 800m of Bondi Junction train station
  - Zone two – everywhere else
  - Zone one has lower maximum requirements than zone two.
- Community consultation with over 30,000 people in the Waverley local government area showed support for some form of parking control. The community was particularly vocal about wanting more walking and cycling routes, as well as car-share spaces.
- In response, council implemented the parking reforms in tandem with a renewed focus on providing and improving alternate transport options.



Image source: Wikimedia commons



CASE STUDY:

# California's unbundled parking

## Summary

- Many cities in California require housing developers to 'unbundle' parking from the price of the unit – giving residents the option to rent or buy parking spaces, but also choose to save money by not having a parking space.
- Unbundled parking was initially resisted by developers, but now developers are pushing to unbundle parking in other cities, as they have found the market accepts unbundling.
- In San Francisco, residents in apartments with unbundled parking and car-share own on average 0.76 cars, whereas residents in apartments with bundled parking and no car-share own on average 1.03 cars. Residents with a car-share membership in that same set of buildings own on average 0.47 cars.

## Timeline of unbundled parking policies

- San Francisco mandated unbundled parking for all new residential developments with 10 or more dwellings in 2006, following a recommendation from urban policy think tank SPUR.
- Santa Monica mandated unbundled parking in specified zones for all new residential developments with four or more dwellings, all new residential conversions with 10 or more dwellings, and all non-residential developments in 2015.
- The City of Oakland mandated unbundled parking for all new residential developments with 10 or more dwellings – except for affordable housing developments – in 2016.
- The City of San Diego mandated unbundled parking for all new multi-dwelling residential developments in Transit Priority Areas – an area within half a mile of a major existing or planned transit stop – in 2019.
- The City of Berkeley mandated unbundled parking for all new residential with 10 or more dwellings in 2021.
- The Californian Government legislated unbundled parking for major infill developments in 2021.

## Why it matters

- Unbundling parking gives consumers choice. It lets them decide how much they value parking spaces, and gives some households the option to save money by foregoing a parking space.
- It has been accepted by developers partly because it does not change the overall number of parking spaces they provide, and partly because it has been accepted by the market.
- It has been popular with cities in California because it is a practical step toward parking reform that makes a modest contribution to affordability.

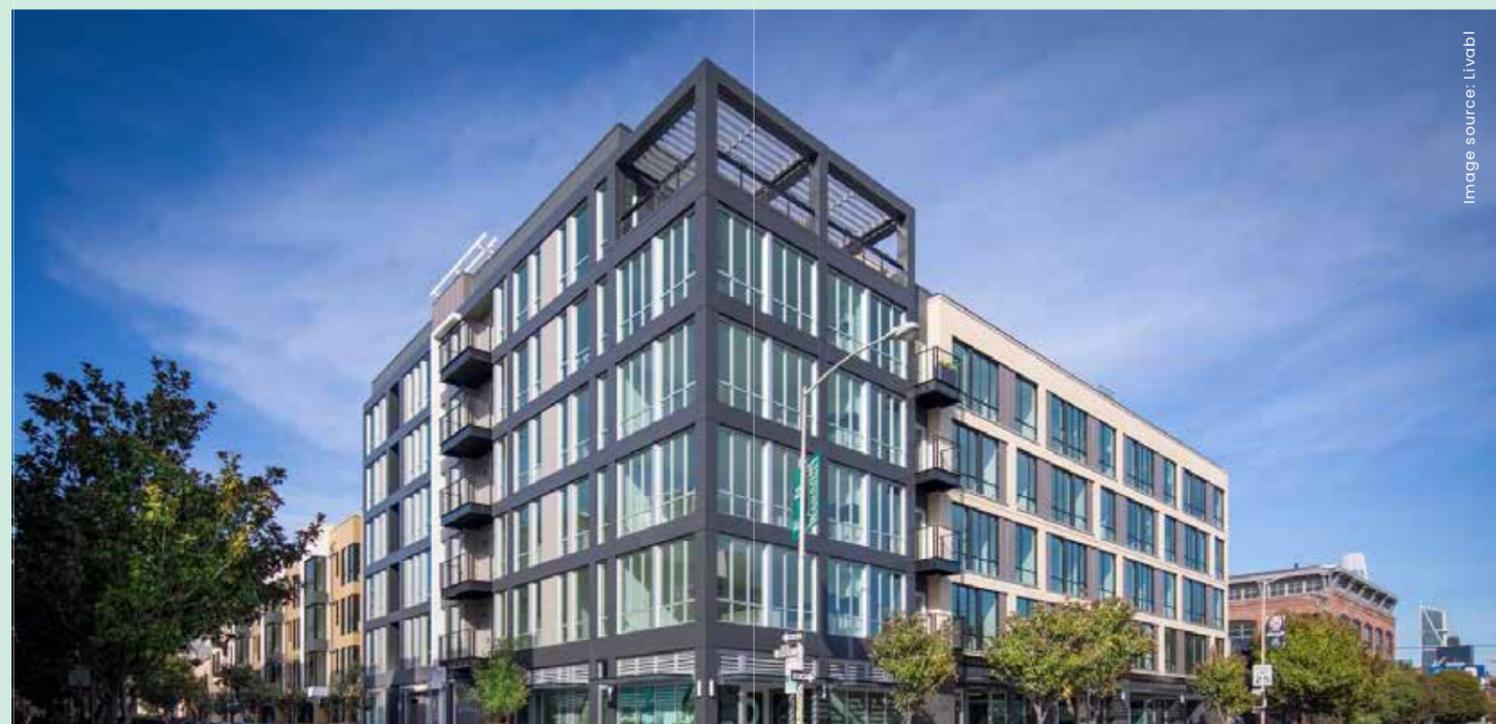


Image source: Livabi



## 6. Design better parking stations

### The goal

Build parking facilities that contribute to the community and public amenity, rather than being an urban blight that detracts from the public realm.

### Why is this important?

All too often parking facilities are dull and ugly, detracting from the surrounding urban environment, but this doesn't have to be the case. There is an opportunity to design parking facilities in Sydney to look great and improve local amenity. Carparks are being reimagined to include rooftop gardens, playgrounds and event venues, ground floor retail, vertical gardens and eye-catching design.

### Actions

#### 6.1. Add amenity and design intention to parking stations

Like all infrastructure, from water supply viaducts to train stations, parking can be designed and built to be beautiful, so it makes a positive contribution to the public realm. This is hard to mandate through prescriptive building controls, but it should absolutely be the aspiration of every architect and engineer who works on a parking structure, along with their clients on both the public and private side. There are great examples in cities around the world.

Key opportunities include:

- **The ground floor** – taller ground floors rather than the functional minimum will almost always improve the feel from the sidewalk.
- **Retail** – if the parking station is on a shopping street, it should have a sleeve of retail consisting of many small retail spaces to support a diversity of stores, as well as awnings, which all Sydney high streets have. There should not be direct access from the carpark to the shops.
- **Facades** – whether the parking is intended to be masked or revealed, the façade presents a key opportunity to contribute visual interest to the street.
- **Rooftops** – adding gardens, solar panels or parks to the roof is a way to give back to the precinct.

**Lead agencies:** governments, architects, developers

#### 6.2. Design parking stations for future convertibility

Demand for car storage will likely decrease in the future. So an emerging best practice in the design of parking stations is making it possible to convert them to other uses in the future.

Convertible carpark designs should include:

- Minimum ceiling heights of 4m on the ground floor and at least 3m on higher floors
- Level floors, instead of sloping floors
- Podium level parking, instead of underground parking – ground floor should be an active use, not parking

While parking certainly isn't the best use of the first few levels of an apartment or commercial building, keeping parking above ground will make buildings more sustainable with space that can be converted for higher uses in the future. Underground parking is energy intensive, requiring constant ventilation and lighting – an estimated 60% of an apartment building's total energy consumption is from common property, such as carparks.<sup>22</sup>

**Lead agencies:** Department of Planning and Environment, local governments



Image source: Jala Architects



CASE STUDY:

# Convertible carpark at 32 Smith Street, Parramatta

## The building

- CBD location
- Three floors of parking
- 21 floors of office space
- 5-star NABERS commitment
- 6 Star Green Star design
- Developed by GPT



## What makes it possible to convert the carpark into office space in the future?

- Podium parking
- A ceiling height of at least 3.75m (as per typical office floor heights)
- Designed so services, such as plumbing, electricity and internet, can be easily connected
- The façade ventilation louvres are the same size as the building's façade system, so they can easily be removed and replaced with glazing
- All levels have the same floor configuration, so that if the carpark is converted the amenities and lifts will be in the same location as typical office floors.

## Why it matters

- Carparks take up a lot of space. If we don't need as much parking in the future, that space could be used more efficiently for office, retail or residential purposes.
- Designing for future conversion reduces the risk of carparks becoming inactive and stranded within the asset – if one day in the future we don't need to store so many cars.



CASE STUDY:

# Convertible commuter carpark, Campbelltown

## Summary

- A proposed commuter carpark at Campbelltown Station has been designed to easily convert into retail and office space if needed.
- The new carpark will have almost 1,000 parking spaces.



Image source: Campbelltown City Council



## The carpark

- Existing surface parking on the site will be optimised into multi-deck parking, leaving additional space for other development.
- Cable routes for electric vehicle charging stations will be laid, making it easy to install them when needed.
- Ground to floor ceiling heights allow for future conversion to retail, with the upper deck able to be converted to office space.
- An internal garden allows sunlight to penetrate the lower levels while increasing ventilation and vegetation.

## Why it matters

- The best use of land surrounding rail stations is high density residential, so consolidating surface parking to allow for more development around rail stations is critical for Sydney.
- Designing carparks for future convertibility means that if one day we need less parking, the building use can be easily and affordably adapted.



CASE STUDY:

# EXO at Victoria Harbour, Melbourne

## The building

- Mixed-use development
- Retail on the ground floor
- Top four floors contain 96 residential units
- The middle seven floors are a public carpark cloaked by a façade designed for aesthetics, as well as natural light and ventilation
- 4 Star Green Star design
- Developed by Lendlease

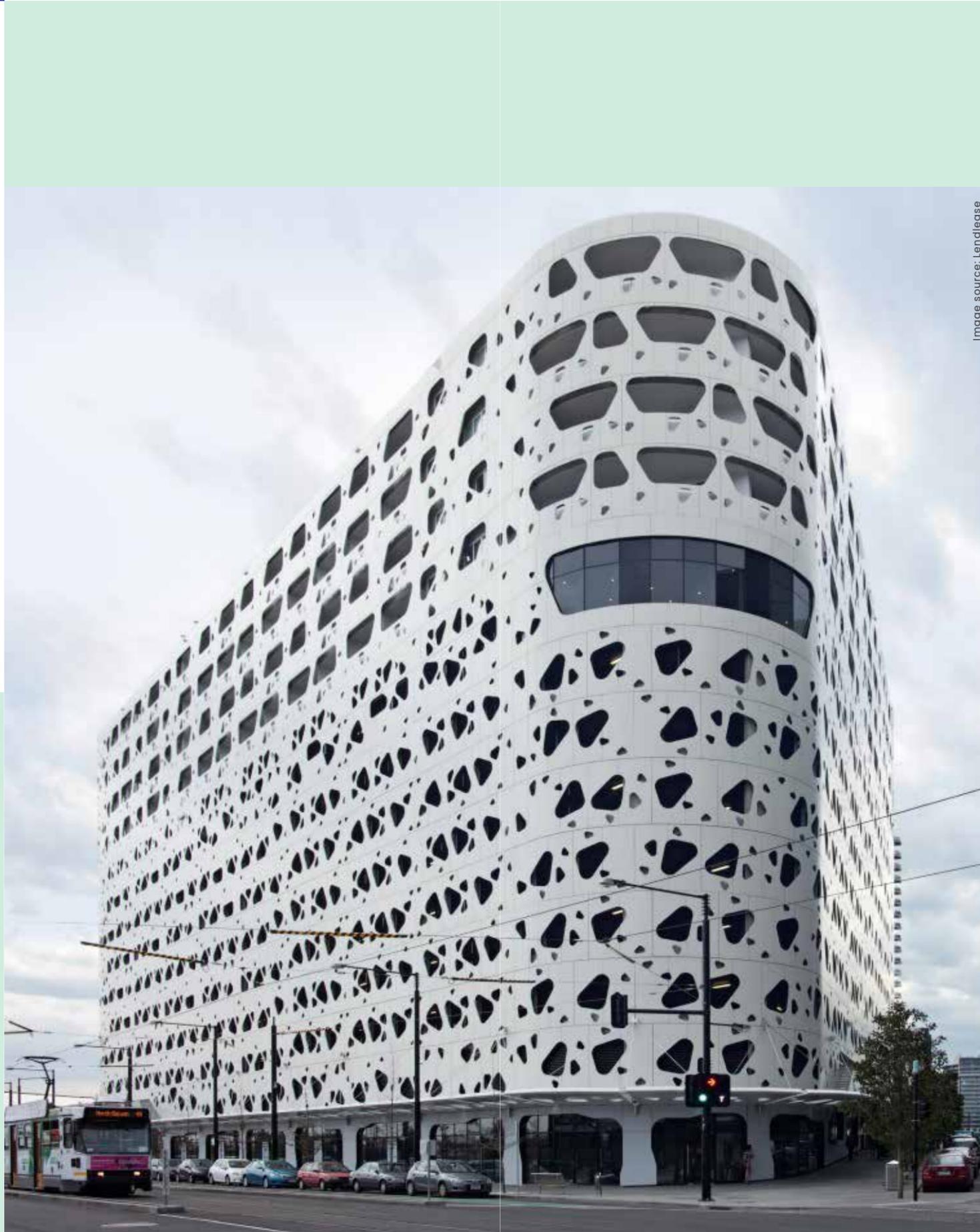


Image source: Lendlease



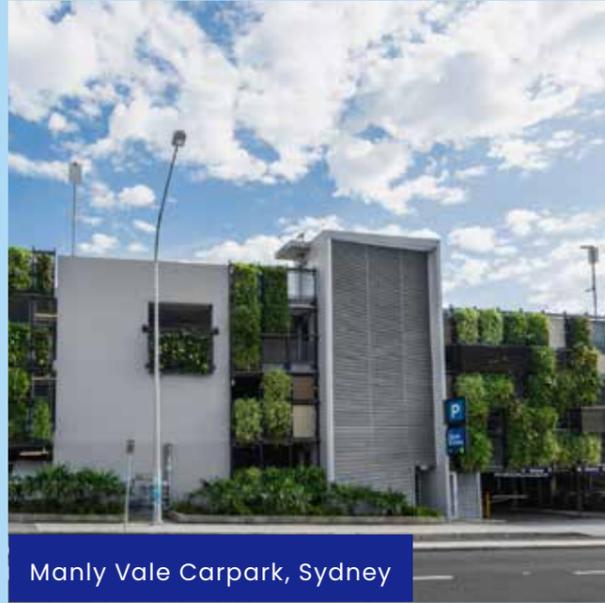
## Why it matters

- Carparks often have inactive frontages. Designing carparks to be mixed-use, with active frontages such as retail, means they won't detract from the street.
- Carpark facades can be designed with both form and function in mind, so they add character to the urban environment.



CASE STUDY:

# Well-designed carpark



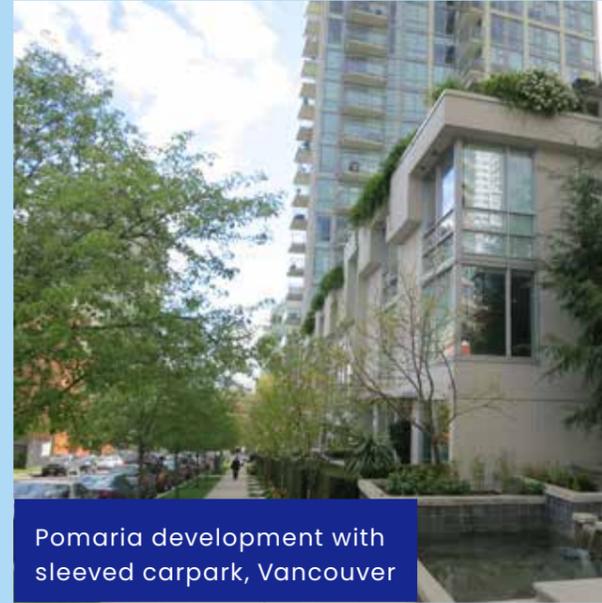
Manly Vale Carpark, Sydney

Image source: Junglfy



Park n Play Carpark, Copenhagen

Image source: JaJa Architects



Pomaria development with sleeved carpark, Vancouver

Image source: Craig Allchin



1111 Lincoln Road Carpark, Miami

Image source: Venue Report



Museum Garage, Miami

Image source: ArchDaily



Stadsberget Carpark, Pitea

Image source: ArchDaily



Cato St Underground Carpark, Melbourne

Image source: McGregor + Coxall



## 7. Make new parking electric-capable



### The goal

Make it easy to charge electric vehicles, preparing for a time in the near future when all vehicles will be electric.

### Why is this important?

We are in the middle of a great transformation under the threat of climate change. One of our overarching goals is to ‘electrify everything’ – and to ensure all of the electricity is renewably powered.

Parking has a role to play in this transformation. Simply put, we need people to be able to charge their electric vehicles at home and at work, if we are going to facilitate a rapid decarbonisation of the transport sector.

While the NSW Electric Vehicle Strategy demonstrates a significant commitment from the NSW Government, minimal changes have been made to the Apartment Design Guide to ensure that all new buildings will be EV capable.

It is expected the next National Construction Code will require a quarter of all new parking spaces to be electric capable. The NSW Government should be more forward-thinking and require most, if not all, new spaces to have charge points installed or have cable routes in place for the future installation of charge points.

### Actions

#### 7.1. Require electric vehicle charge points and cable routes in new buildings

Petrol vehicles will not exist very soon. The UK has banned the sale of petrol cars and vans from 2030, and the European Union, California, Canada and China have banned sales from 2035. It is a virtual certainty that by the mid-2030s there will be no more new petrol vehicles available for sale in Australia as well.

In other words, petrol vehicles will cease to be used within the intended design life of new buildings being built today.

New buildings (or those undergoing major renovation) should therefore be required to have electric vehicle charge points, or cable routes for the future installation of charge points, in most or all parking spaces. The continued growth in rooftop solar means electric vehicles can be charged during the day without putting any increased pressure on the electricity grid.

**Lead agencies:** Department of Planning and Environment, local governments

#### 7.2. Incentivise strata buildings to retrofit electric vehicle charging

Retrofitting existing residential buildings with electric vehicle charging infrastructure will be essential when internal combustion engines are eventually banned. But even more importantly, it will encourage the uptake of EVs now.

Retrofitting will be different for each building and it will require changes to strata by-laws. Given the process is somewhat difficult, lengthy and expensive, strata buildings should be incentivised to start retrofitting buildings now. The NSW Government has developed an online guidance tool for making residential strata buildings EV ready,<sup>23</sup> however, financial incentives are likely to be needed to get buildings over the line.

An incentive program could cover the cost of solicitor or conveyancer fees to update by-laws, or it could cover a percentage of the installation costs (capped at a certain amount). To encourage the uptake of solar, a higher percentage of installation costs may be covered for a building with solar panels.

**Lead agency:** Energy NSW





CASE STUDY:

# United Kingdom EV requirements

## Summary

- The UK became the first country to legislate all new buildings must be EV ready, with the laws coming into effect on 15 June 2022.
- The legislation sits within The Building Regulations 2010, with technical requirements for charge points, cable routes and future connection locations.
- Most of the requirements only apply for buildings with 10 or more associated parking spaces.



## Selected building requirements

- New residential dwellings, including those resulting from a major renovation, must install at least one electric vehicle charge point for each dwelling with parking. Cable routes for future charge points must be installed in all other parking spaces.
- New buildings that are not residential or mixed-use must install at least one electric vehicle charge point as well as cable routes in at least one fifth of the other parking spaces.
- Charge points must have a minimum output of 7kW to allow for fast charging, be fitted with a universal socket (also known as an untethered charge point), be fitted with an indicator to show the charge status, and be a minimum of 'Mode 3' (which means the charge point is permanently connected to the electrical network).
- Cable routes must be provided from a metered electricity supply point to the future connection location and have sufficient space for the future installation of power boxes and charge points.

## Why it matters

- The entire vehicle fleet – in Sydney, as in every city in the world – is going to become electric. We know with certainty we are looking at a future where no one will have a petrol vehicle.
- It is far less expensive to build parking stations to accommodate this future from the start, rather than having to retrofit all the parking spaces later.
- The UK's building requirements are a good example for other cities to follow.



## 8. Use funding from off-street parking to make neighbourhoods more liveable



### The goal

Generate and use revenue from parking to improve active and public transport connections, as well as public space.

### Why is this important?

Driving imposes real costs on people. At the individual or household level, cars cost a lot to buy, register, maintain and fuel. At the societal level, they cost even more, taking up a huge amount of public space, causing serious injury and fatalities, and emitting toxins and greenhouse gas that damage public health and the environment.

Free parking subsidises car ownership and use. While charging for parking is not normally a popular option, it is an appropriate way to manage parking supply and to generate revenue that can be used for things that make neighbourhoods more liveable and sustainable. Cities like Austin, Houston, London, Los Angeles, Pittsburgh and San Diego have 'Parking Benefit Districts' where revenue from on and off-street parking is used to improve streets, public transport, and walking and cycling infrastructure.<sup>24,25</sup>

### Actions

#### 8.1. Update the Parking Space Levy

The Parking Space Levy<sup>26</sup> was introduced in 1992 to discourage driving into Sydney's central business districts through an off-street parking levy.

Since the last significant rate hike in 2009, Sydney's population has grown by roughly 20% and car ownership rates have remained steady – meaning there are more cars on Sydney's roads and parking has risen to an even higher premium. The levy is therefore due for a significant rate hike.

Categories should also be reviewed to include more districts and some of the exemptions should be removed. Car-share should be added as an exemption (as in Victoria) to give residents and workers in these districts the ability to access a car without owning one.

**Lead agencies:** Transport for NSW, Revenue NSW

#### 8.2. Use revenue from the Parking Space Levy to fund public and active transport

Money collected from the Parking Space Levy goes into the Public Transport Fund, which earns over \$100 million a year.<sup>27</sup> However, how it is spent is not transparent. The fund should be more transparent to increase public support for the levy and any associated increases or district additions.

Government should consider prioritising funding for the local governments where the levy is collected – which would further increase public support for the levy. If this approach is implemented, existing council carparks should be exempt from the levy, so local governments don't pay money that will later be refunded; newly built council carparks should not be exempt from the levy.

Along with making the fund more transparent, it should be expanded to become the Public and Active Transport Fund, helping to build out Sydney's cycling network and make streets more walkable.

**Lead agencies:** Transport for NSW, Revenue NSW

#### 8.3. Use revenue from parking related penalty notices to flow into the same fund

Annual revenue from parking related offenses in NSW is more than double the amount collected from the Parking Space Levy. In FY 20-21, parking related offenses contributed \$213 million in revenue for NSW.<sup>28</sup> We suggest that this revenue be redirected into the Public (and Active) Transport Fund to increase the number and scope of projects that the fund can finance.

**Lead agencies:** Revenue NSW, Transport for NSW



CASE STUDY:

# Austin's 'Parking Benefit District' program

## Summary

- The City of Austin, Texas, created a Parking Benefit District program (PBD) in 2011.
- PBDs collect revenue raised from metered parking to go towards active and public transport improvements.
- Some of Austin's PBDs collect almost \$300,000 per year.

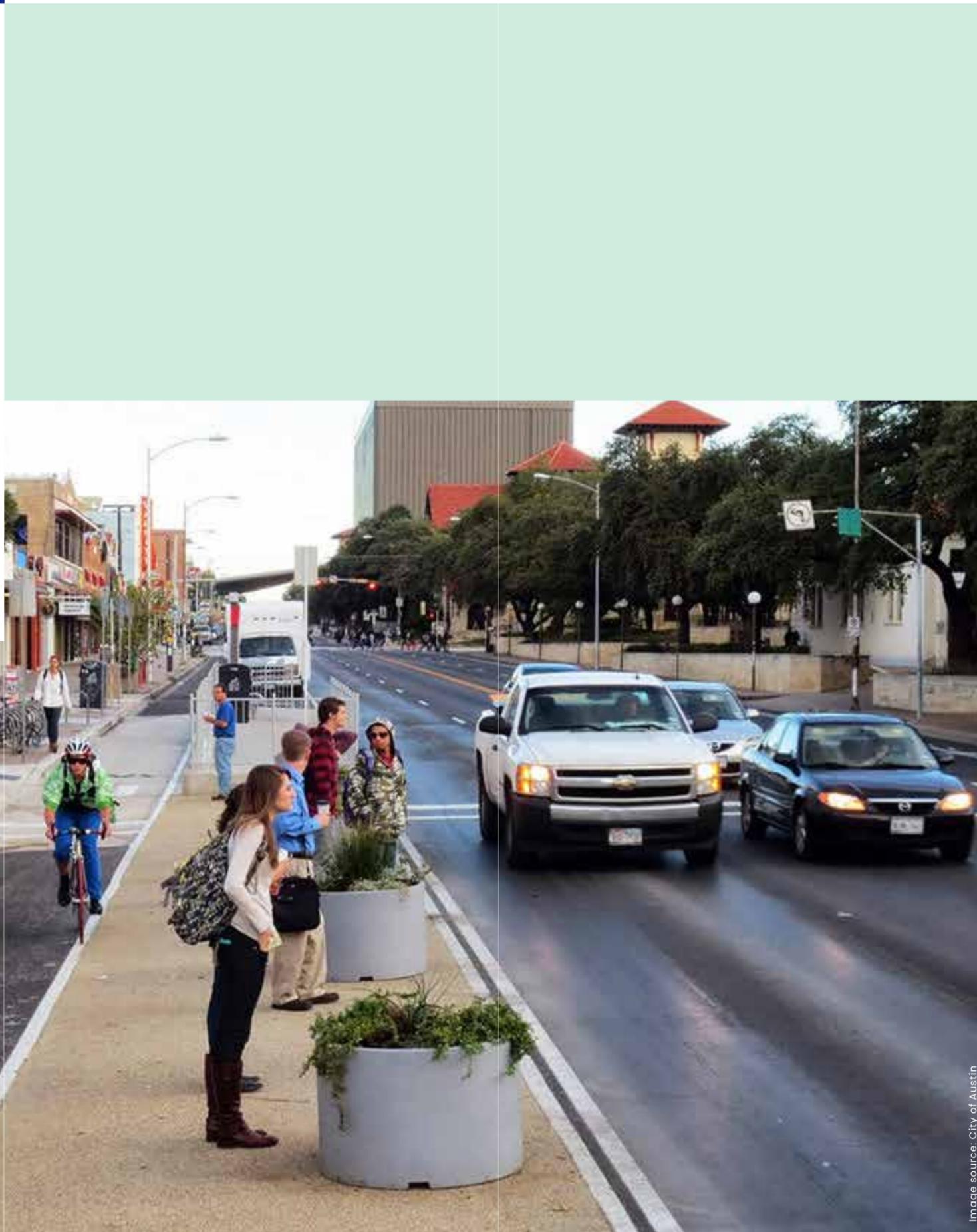


Image source: City of Austin



## Requirements for Parking Benefit Districts (set out by the Municipal Code)

- A PBD must include at least 96 paid parking spaces.
- Funds collected must be used to pay for improvements that promote walking, cycling and public transport use within the district.
- 51% of the funds may be used in conjunction with other city funds for neighbourhood improvements within the district.
- PBDs can be set up as time-limited operations designed to cover the cost of specific improvements, meaning once an identified improvement has been made the PBD can be terminated.

## Why it matters

- Using parking revenue to pay for active and public transport improvements builds public support for paid parking.
- The model discourages private car use while making it easier to get around without a car.



CASE STUDY:

# 'Bicing' – Barcelona's subscription bike-share service

## Summary

- Barcelona introduced paid parking throughout the city in 2005.
- At the same time, a mobility fund was set up to capture surplus revenue from parking – around €12 million per year – to pay for active transport improvements.
- The fund is now used solely to finance Bicing, the city's public-private bikeshare service, which was established in 2007.



## Bicing

- Bicing is a subscription-based service for residents – tourists cannot use the service.
- Users book via an app and access the bikes with a QR code or smartcard.
- Bicing started out with a fleet of 1,500 bikes and now has more than 7,000 bikes.
- There are 519 Bicing stations across Barcelona. Based on a 500m buffer around each station, the service area covers 89% of the city's population.
- Initially the service was fully funded by surplus parking revenue. However, following expansion of the service, subscription and usage fees were introduced to help cover the remaining running costs.

## Enabling growth of bicycling

- Barcelona has converted more than 1,000 on-street parking spaces into Bicing stations.
- In the first three years of Bicing's service, the city installed an extra 150 kms of bike paths.
- Before Bicing, there were roughly 30,000 bike trips in Barcelona each day. Three years after the service was established there were roughly 100,000 bike trips per day, with just under half via Bicing.

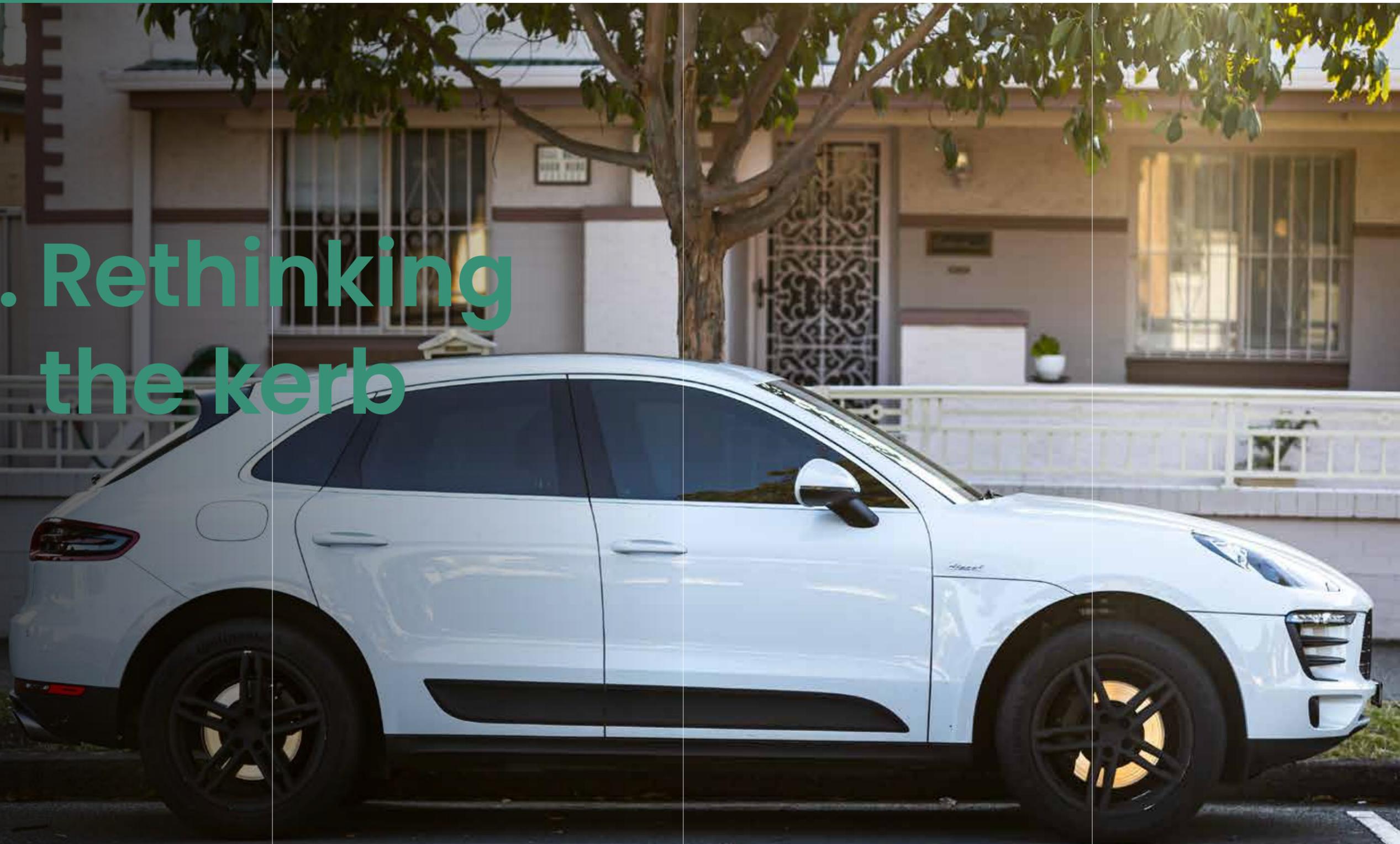
## Why it matters

- Barcelona has demonstrated how multiple strategies come together to enable the growth of cycling. While the city was adding cycleways, it was also making it easy for people to spontaneously grab a bike from the sharing scheme. These approaches worked together to enable the growth of ridership.
- Bike-sharing schemes are important for enabling one-way trips. It's possible to take public transport to work, then use a bike to get around during the day, for example.
- Electric bikes greatly expand the market of people who can get around by cycling. They appeal to people who don't want to work up a sweat for whatever reason (not to mention, for Sydney, going up hills).
- Finally, the Bicing scheme is a good example of using funds from parking to improve active transport options.

|                  | Frequent users (€50 per year) |               | Occasional users (€35 per year) |               |
|------------------|-------------------------------|---------------|---------------------------------|---------------|
|                  | Mechanical bike               | Electric bike | Mechanical bike                 | Electric bike |
| Up to 30 mins    | Free                          | €0.35         | €0.35                           | €0.55         |
| 30 mins to 2 hrs | +€0.70                        | +€0.90        | +€0.70                          | +€0.90        |
| 2 hrs or more    | +€5/hr                        | +€5/hr        | +€5/hr                          | +€5/hr        |



# III. Rethinking the kerb





## 9. Reclaim high streets for parking and public spaces

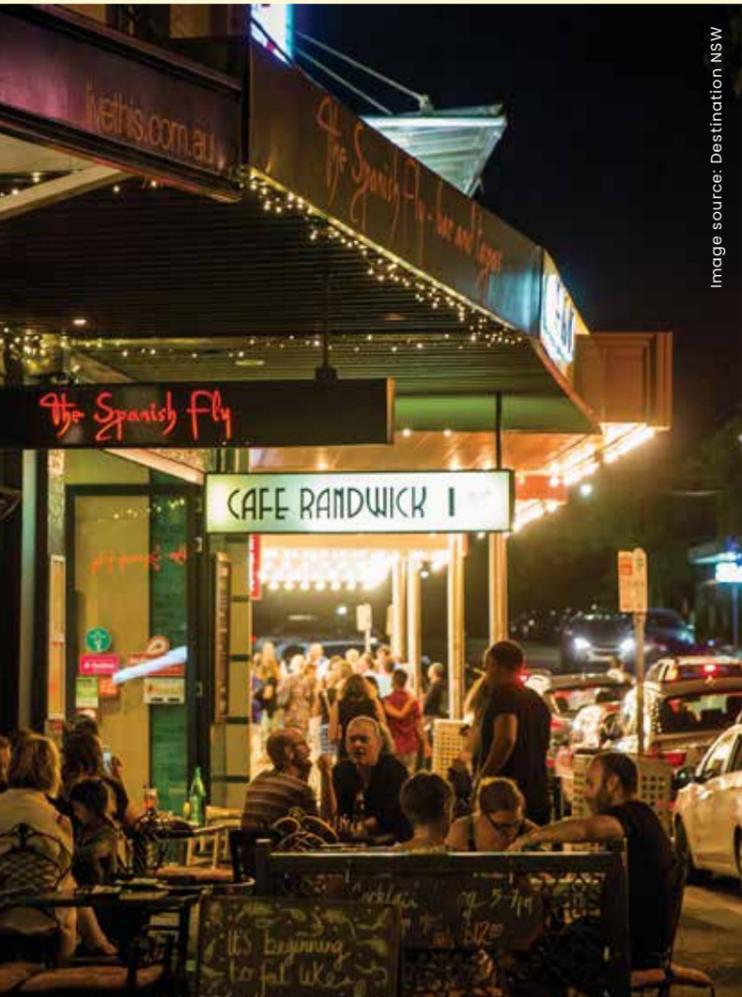


Image source: Destination NSW

### The goal

Use the kerb lane for short term parking, public space amenities, and to protect pedestrians from moving traffic.

### Why is this important?

The kerb is a place of constant transition. It is where people on a bus, bike or in a car depart and arrive. It is where people hail a taxi or Uber, where deliveries are loaded and unloaded, and where waste is collected. New uses for the kerb lane, like parklets, bike corrals and gardens, are constantly emerging. In many ways, the kerb lane is a key enabler of urban life.

The kerb lane on high streets, in town centres and CBDs has many different potential uses including:

- Short term parking
- Parklets
- Pick up and drop off zones
- Delivery zones
- Trees
- Bike corrals
- Bus bulbs
- Car-share spaces

We are missing out on a major opportunity to rethink the kerb and make this valuable space work harder for us. It is worth noting that growing an on-street car-share network is the best way to free up space to enable these kerb transformations on residential streets as well as high streets.

### Actions

#### 9.1. Remove clearways from high streets

The absolute worst thing to do with the kerb lane is to use it as a clearway. Designed solely for the throughput of traffic, clearways bring noise, pollution and a deeply felt sense of unease to the street. Humans are not comfortable being that close to fast moving traffic.

Moreover, clearways mean no permanent uses can go into the kerb lane – no parklets, no bike corrals, no street trees.

While in many cases they are meant to benefit bus speeds, they almost always have the effect of inducing more car traffic as well.

We recognise that for some people this will be the most controversial recommendation in this paper, but we have come to a very clear conclusion: high streets cannot be healthy if there are clearways on them.

Running moving traffic next to the footpath makes high streets unworkable as public space. Peak hour clearways kill the viability of the shopping street during core business hours every day. Sydney needs to come up with a different set of solutions for its bus network or tolerate slower speeds on the high streets (buses and other traffic can speed up again after the high streets).

For buses currently running on high streets there are many possible solutions – which will require more detailed planning. Possibilities include:

- Re-routing the bus line
- Giving the buses signal pre-emption technology – so they can control traffic lights and not spend time waiting at red lights
- Building queue jump lanes for the buses to get in front of traffic
- Adding bus bulbs so they don't need to pull out and back in to traffic
- Or simply tolerating slower trip times in some case

By removing clearways, we create a safer and more pleasant environment for people to walk, and free the kerb lane for a variety of purposes, not just 'new' uses we are promoting here, but parking that supports local shops.

Transport for NSW should adopt a program of ending clearways on high streets as a top programmatic priority, working to adjust key bus routes at the same time.

**Lead agencies:** Transport for NSW, Department of Planning and Environment, local government



## Actions (continued)

### 9.2. Create parklet programs

Parklets are temporary or permanent fixtures placed in the kerb lane that contain seating areas and greenery for the public to enjoy. Parklets provide more public space for interactions between friends, family and neighbours, and support local businesses by providing more space for people to sit, eat and drink.

Cities around the world have instituted programs to support the establishment of temporary and permanent parklets. We suggest local governments should establish parklet programs to improve high streets in Sydney.

Funding could be provided (as per recommendation eight) for local governments to install and maintain parklets. Other parklets could be privately funded, for example, by local businesses who want to install a parklet fronting their building.

**Lead agencies:** Department of Planning and Environment, Transport for NSW, local governments

### 9.3. Use the kerb lane for a variety of things that make high streets work

Removing clearways makes it possible to use the kerb for so many things that make high streets, town centres and CBDs function better, and feel better. We can increase the number of short-term parking spaces to better support local shops, create food delivery pick-up zones for riders, install bike corrals so locked bikes don't clutter the footpath, and install verge gardens or street trees to green the street.

While we suggest the above recommendations are all given permanent space in the kerb lane, where this is not possible there is an opportunity for some to have temporary space in the kerb lane. For example, food delivery zones may only be in operation during certain times of the day, and during other times this space may be used as a commercial loading zone or traditional parking space.

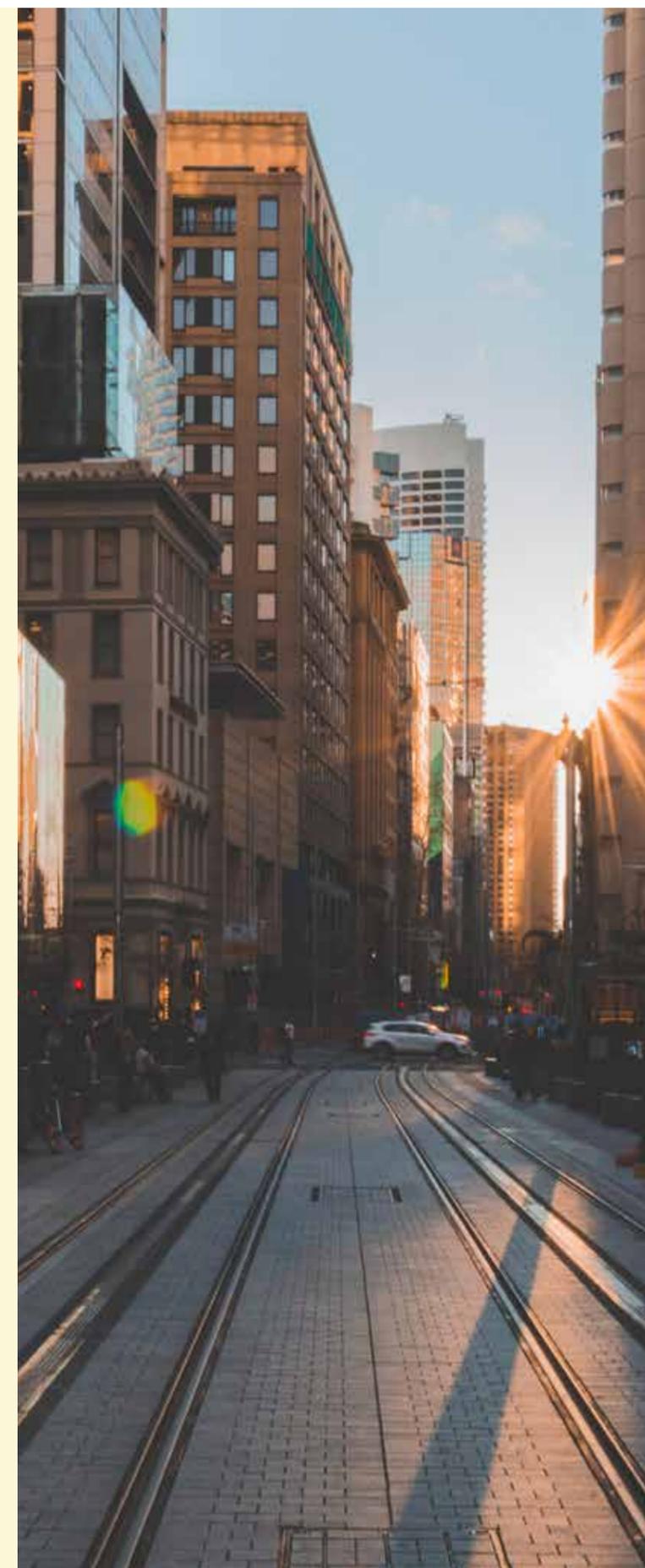
**Lead agencies:** Transport for NSW, local governments

### 9.4. Remove the need for Traffic Committee to approve certain uses of the kerb lane

NSW is the only state in Australia to use Local and Regional Traffic Committees. These committees are designed to delegate certain aspects of the control of traffic on regional and local roads to local government, but often have the unintended effect of blocking progressive and diverse uses of the kerb lane proposed by local governments.

NSW Government should allow local governments to make changes to the kerb lane without approval from Traffic Committee. Exempt changes should include the installation of things like cycleways, bike corrals, designated car-share spaces, parklets, verge gardens and food delivery zones.

**Lead agency:** Transport for NSW, local government





CASE STUDY:

# San Francisco parklets

## Summary

- San Francisco has more than 1,500 parklets – small, highly designed open spaces that fit into a parking space.
- Each parklet design is unique, making them distinct features that improve the feel of a street.



Judah Street Parklet

## The program

- The San Francisco parklet movement began as a project by the art collective Rebar in the 1970s, which created a temporary public space in a kerbside parking space by feeding coins into a meter all day, to raise awareness about how much space in cities is given over to storing cars.
- Rebar’s initial project eventually became a global movement known as Parking Day, when cities all over the world create temporary art projects and public spaces in parking spaces.
- In San Francisco, Parking Day evolved into a growing wave of parklets in neighbourhoods across the city.
- Today, the San Francisco city government has well established processes for permitting, and monitoring parklets, to ensure they are well maintained and tracked. There are both non-commercial parklets (parks or art projects) and commercial ones (generally outdoor seating for restaurants).
- The annual permit fee ranges from \$100 for a public parklet, to \$2,000 for a commercial parklet.

## Why it matters

- Parklets are a way to inject fun and vitality into the streetscape, re-purposing public space for a far wider range of uses than simply storing cars.
- They create more space for people to stop and rest, eat lunch, meet with friends, and engage with their community – making the street more relaxing and enjoyable for everyone.
- Parklets also support local businesses, with 90% of people who use parklets in San Francisco saying they spent money on the street.



Garden Parklet, San Francisco



Irving Street Parklet



Cinderella Bakery Parklet



## 10. Use dynamic pricing and permits

### The goal

Use price mechanisms to manage on-street parking supply where demand exceeds the number of available spaces.

### Why is this important?

In the parts of cities that are dense and active, there will usually be more demand to park than supply of spaces. This final recommendation deals with the question of how to allocate those spaces.

In commercial areas and tourist areas – high streets, town centres, CBDs, popular beaches, etc – we recommend using demand-based pricing. This means prices go up and down based on demand, and there is always a spot available.

In residential areas, we recommend parking permit schemes. Permit schemes are particularly useful to ensure there is no parking spillover from new developments that may have low rates of parking.

### Actions

#### 10.1. Implement demand-based pricing in commercial and tourist areas

We need to make sure there is always a parking spot for those who need it without encouraging everyone to drive everywhere. Free or cheap on-street parking encourages more people to drive and park for longer. This creates high parking occupancy rates with low turnover, reducing access to parking for those who need it.

New technology provides an opportunity to implement dynamic demand-based pricing for parking easily and effectively. Smart parking meters can update prices based on occupancy rates in different locations as they change throughout the day (see case study on SFpark for an example).

Where paid parking rates are static and flat-rate, occupancy rates may be too high in one area and too low in another. Where occupancy rates are too high, traffic congestion and emissions increase as people circle trying to find a free space. Conversely, there are times and places where the prices are too high, relative to the demand to park.

Dynamic demand-based pricing will reveal the real market value of parking. The 'right price' will ensure high occupancy rates while one or two spaces are always free. Dynamic pricing also helps set the right price for different locations at different times of the day.

**Lead agencies:** Transport for NSW, Service NSW, local governments

#### 10.2. Develop a NSW-wide parking app to modernise the way we pay for parking

A state-wide parking app should integrate different parking operators used in different local governments. The app should give people the ability to pay for parking on their phone. It should also notify people when their paid parking is running out.

This app would decrease instances of illegal parking as people will be alerted on their phone when their time is running out, and if required will pay for more time remotely via their phone. The app could be used to nudge people onto public or active transport by showing them price and time differences for using different modes to reach their destination.

**Lead agencies:** Transport for NSW, Service NSW, local governments

#### 10.3. Implement residential parking permits in areas where demand outstrips available on-street spaces

Councils that want to manage on-street parking demand in residential areas should issue parking permits. Many councils in Sydney already do this, some throughout the whole council area and some in certain locations. However, several Sydney councils do not yet have a residential parking permit scheme.

Depending on the location, a residential parking permit in Sydney will currently set you back anywhere from free to \$164 per year. This means even the most expensive residential parking in Sydney costs less than a dollar a day.

Increasing annual parking permit fees is one way to manage on-street parking demand. Other options include conditions for permit eligibility, or capping the number of permits allowed per household.

**Lead agency:** Local governments





CASE STUDY:

# San Francisco SFpark

## Summary

- **SFpark began as a pilot program for parking demand management, run by the Municipal Transportation Agency (MTA) between 2011 and 2013.**
- **The core idea was to adjust prices for parking, up or down based on demand, to manage the availability of supply. Several key benefits flow from this:**
  - **People know they will always be able to find a parking space. The price will adjust upward in periods of high demand but there will be a place to park on every block and in every parking station.**
  - **Instead of getting a parking ticket, people have the ability to buy more time. The MTA earns more money from charging for parking, and less money from issuing parking citations.**
- **The pilot's success led to the permanent implementation of SFpark in the city centre and along high streets throughout San Francisco.**
- **The program uses smart meters, in-ground sensors and a phone app to set parking prices based on occupancy in real-time.**

## How it works

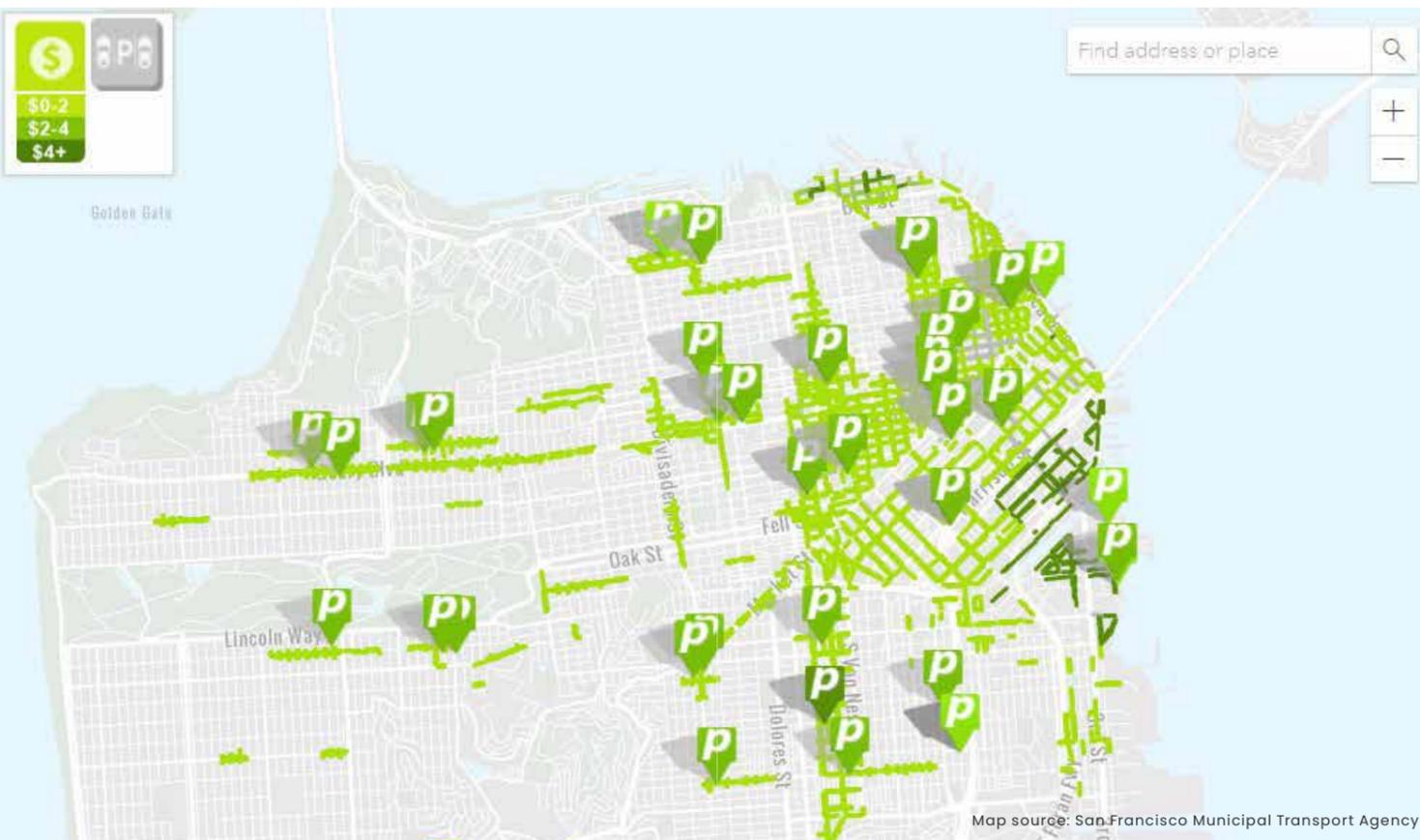
- 7,000 on-street metered parking spaces and more than 12,000 off-street parking spaces were upgraded with in-ground sensors to detect occupancy.
- Smart meters, which adjust prices based on occupancy, were installed. Prices would adjust hourly:
  - At 80–100% occupancy, the hourly rate increases by \$0.25
  - At 60–80% occupancy, the hourly rate does not change
  - At 30–60% occupancy, the hourly rate decreases by \$0.25.
- Real-time information on parking availability is accessible to the public via an app.

## Results of the pilot

- Lower average hourly rates on-street (-\$0.11) and in parking stations (-\$0.42).
- 43% decrease in time spent driving while looking for parking.
- 30% decrease in vehicle miles travelled, due to less time spent looking for parking.
- 30% reduction in greenhouse gas emissions, due to less time spent looking for parking.
- 23% decrease in parking fines administered at metered locations.
- 8% decrease in traffic volume, due to fewer cars looking for parking.
- The decrease in traffic volumes led to a 2.3% increase in the speed of public transport services along corridors.
- An estimated \$1.9 million increase in net parking revenue.
- In areas that had new parking meters installed, the percentage of time where parking spaces were available increased from 10% to 85%.

## Why it matters

- The idea behind this kind of demand-responsive pricing was to set a 'market clearing price' for parking – in other words, to ensure that a supply of parking was always available. SFpark has proven this idea is practical and implementable.
- While the public was sceptical at first, most people appreciate how much easier and more customer-friendly the new system is.





# > Appendix





## Table: Implementation guide

This table further details how to implement some specific recommended actions in this paper.

| Action   | What needs to happen   | Lead agencies   |
|--|--|---|
| 1.6 Adopt a mode-share target  | <p>We need an ambitious target for Sydney's future mode share.</p> <p>To support development of a mode share target, Transport for NSW should publish more detailed data from the Household Travel Survey. Ideally, we need to know what percentage of car trips in Sydney are less than 5km. It is reasonable to assume most car trips that are 5km or less could be made by other modes if they were convenient, easily accessible, affordable and safe.</p>   | Transport for NSW; Greater Cities Commission; Infrastructure NSW                                  |
| 2.1 Include on-street car-share as a priority in Transport for NSW plans                         | <p>Transport for NSW should prioritise car-share in strategic plans – and possibly include in the Transport and Infrastructure SEPP – to ensure an even and equitable network.</p> <p>The NSW Government should set out rules for:</p> <ul style="list-style-type: none"> <li>The application and approval of on-street dedicated car-share spaces</li> <li>Priority locations for on-street dedicated car-share spaces</li> <li>The installation and removal of on-street dedicated car-share spaces</li> <li>Any fees or permits for on-street dedicated car-share spaces – we suggest the cost of car-share permits should be tied to the maximum cost a resident would pay for a parking permit in any given local government area.</li> </ul> <p>Priority car-share locations should be any street, avenue or road within a 2km radius of a train, Metro or light rail station where:</p> <ul style="list-style-type: none"> <li>There is no other dedicated car-share space on the proposed street, avenue, or road; and</li> <li>The proposed space is on the side frontage of a house, or in front of apartments, or in front of an industrial building, or alongside a park; and</li> <li>The proposed space is in either an unrestricted parking area, or a time-limited parking area that exempts resident permit holders, or a metered or time-limited parking area that does not exempt resident permit holders but is within 250m of a public transport station/stop; and</li> <li>The car-share operator agrees to pay for the installation of signage and the painting of line-marking at the site.</li> </ul> <p>The identification of priority locations for on-street dedicated car-share spaces should remove the need to conduct community consultation for every proposed space.</p> | Transport for NSW   |
| 2.3 Require car-share in all new developments near rail stations in Greater Sydney               | <p>Car-share requirements for new developments should be set out in SEPP No 65.</p> <p>Car-share vehicles should be required in new developments in Greater Sydney that are:</p> <ul style="list-style-type: none"> <li>Within 800m of a train, Metro or light rail stop in the Sydney metropolitan area; or</li> <li>On land zoned, and sites within 400m of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre.</li> </ul> <p>The number of car-share vehicles required in new residential developments by the SEPP should be:</p> <ul style="list-style-type: none"> <li>One car-share space for every 20 units without parking.</li> <li>One car-share space for every 100 2+ bedroom units with one parking space.</li> </ul> <p>Where necessary, the requirement can be bundled with a small increase in floor space ratio.</p> <p>Crucially, the wording must ensure a car-share provider is contracted by the developer, at no cost to either the developer or car-share provider, to avoid spaces being built and left empty.</p> <p>Car-share spaces in residential developments need to be accessible to all car-share members – i.e. not exclusive to residents. This increases the amenity of new developments for both residents and the community and improves viability of the space for car-share providers.</p> <p>Developers should work with car-share providers from the planning phase to ensure the location of spaces are either on new streets within the development or before any security or roller door – this will make the cars easy to access for members, as well as for maintenance and cleaning.</p>   | Transport for NSW; Department of Planning and Environment; local governments; car-share providers |
| 2.4 Allow developers to reduce the parking rate if they include car-share                        | <p>The Transport and Infrastructure SEPP should allow developers building in any location to reduce the parking rate of a new build by 10 spaces for every one car-share space contracted to an authorised provider.</p> <p>The NSW Land and Environment Court has previously ruled that one car-share space can reduce 10–12 private car spaces within a development,<sup>29</sup> and on several occasions ruled that the minimum parking requirements for a development can be reduced with the inclusion of car-share.<sup>30,31,32</sup></p> <p>Including a car-share requirement for new residential developments in the SEPP will improve the car-share network, reduce build and purchasing costs, and simplify requirements for developers.</p>   | Department of Planning and Environment; local governments; car-share providers                    |
| 3.1 Do not allow new standalone parking facilities to be built in the Sydney and Parramatta CBDs | <p>City of Sydney Council should update part 7.18 of the LEP so new parking facilities cannot be built within the CBD.</p> <p>City of Parramatta should make an addition to their LEPs so new parking facilities cannot be built in Zones B3 or B4.</p> <p>Eventually other strategic centres should consider strengthening their LEPs to do the same.</p>   | City of Sydney, City of Parramatta  |

| Action  | What needs to happen  | Lead agencies   |
|---|---|---|
| 5.1 Remove minimum parking requirements in new development                          | <p>SEPP No 65 (Design Quality of Residential Apartment Development) should preclude the implementation of minimum parking requirements.</p> <p>The Guide to Traffic Generating Developments needs to be updated at the same time as removing parking minimums. The document currently refers to surveys conducted in the 1970s and '80s and does not reflect current parking best practice.</p>   | Department of Planning and Environment; Transport for NSW |
| 5.2 Set parking maximums for new developments in transport-rich, walkable locations | <p>Parking maximums should be included in SEPP No 65 (Design Quality of Residential Apartment Development) for any new development:</p> <ul style="list-style-type: none"> <li>Within 800m of a train, Metro or light rail stop;</li> <li>on land zoned, and sites within 400m of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre.</li> </ul> <p>Currently, local governments set parking rates for new developments in their jurisdiction. SEPP 65 does not impose parking requirements; instead related documents provide recommendations on setting parking rates – including a Practice Note,<sup>33</sup> Apartment Design Guide<sup>34</sup> and Guide to Traffic Generating Developments.<sup>35</sup> These documents are now 7–20 years old and still refer to minimum parking requirements. None of the documents recommend implementing maximum parking requirements in station area precincts or commercial zones – at best they refer to reducing minimum parking requirements. All these supporting documents should be updated.</p>  | Department of Planning and Environment; Transport for NSW |
| 7.1 Require electric vehicle charge points and cable routes in new buildings        | <p>All new buildings (or those undergoing major renovation) should be required to have electric vehicle charge points and cable routes under the consolidated Housing SEPP and Transport and Infrastructure SEPP.</p> <p>Legislation in the UK can be used as a model. However, we suggest NSW Government is more ambitious and sets a higher requirement for electric vehicle charge points than the UK.</p> <p>Setting standards for charge points in new residential and non-residential buildings will ensure they are effective and future proofed. We suggest all charge points or cable routes have a minimum charging power of 7kW, be at least Mode 3 or equivalent, and be untethered.</p> <p>These suggested requirements are based on the current UK legislation. A minimum of 7kW power for the charge point allows cars to be charged relatively quickly. Mode 3 charge points are preferable as they provide protection against AC and DC shocks, which Mode 1 does not. Mode 3 is more flexible than Mode 2 as it does not require a specific type of cable.</p> <p>Untethered chargers can have universal sockets or allow for an easy change of socket type in the future. This type of charger may also be better for safety, as people are required to take the charging cable with them, meaning cords are not hanging from the wall, which may create a trip hazard.</p>  | Department of Planning and Environment                    |
| 8.1 Update the Parking Space Levy   | <p>In 2009, the rates for Category One districts (Sydney CBD, North Sydney and Milsons Point) effectively doubled, and the rates for Category Two districts (Bondi Junction, Chatswood, Parramatta and St Leonards) increased by 50%.<sup>36,37</sup> We suggest the rate for Category One districts should now be increased by 50%, and the rate for Category Two districts should be increased by 100%.</p> <p>Subclause 1(j) should be removed – it currently exempts premises owned or occupied by a religious body or a religious organisation, and premises owned or occupied by a charity or public benevolent institution.</p> <p>Subclause 5 should be removed – it currently exempts parking spaces that are used for retail or restaurant customers, hotel guests, club guests, car sales and more.</p> <p>Subclause 3 and 4 should be amended to remove exemptions for spaces that are unused casual parking. While the exemption supports carparks that have reduced their demand, it subsidises the entire parking facility. If these spaces were not exempt, demand for parking would likely decrease even more as parking rates would have to increase. Reduced demand may then allow for some parking stations in Sydney's business centres to be repurposed or retrofitted for office or residential space. Underground carparks may be able to be retrofitted for theatres, cinemas and retail.</p> <p>Car-share should be added to the list of exemptions, as it helps reduce private car ownership by individuals and businesses in the CBD.</p> | Transport for NSW   |
| 8.2 Use revenue from the Parking Space Levy to fund public and active transport     | <p>The Parking Space Levy earns over \$100 million a year,<sup>38</sup> but how it is spent is not transparent. Revenue and expenses between 2011–2021 are available,<sup>39</sup> however, these numbers are aggregated and do not show what projects were funded with the money. Details on how the fund has been spent is only available for FY 19–20 project contributions.<sup>40</sup></p> <p>Details on how the fund has been spent should be available for all years, so the public can see what projects benefit from the levy. Making the fund more transparent will increase public support.</p>   | Transport for NSW; Revenue NSW                            |
| 9.2 Create parklet programs   | <p>San Francisco's Shared Spaces Program<sup>41</sup> or New York City's Street Seats Program<sup>42</sup> could be used as a model.</p> <p>Community groups, businesses and institutions should be allowed to apply for, install, and maintain parklets. Parklets installed for use of business customers should be free for the public to use after business hours.</p> <p>The parklet sponsor should have general liability cover of at least \$1,000,000.</p> <p>The parklet sponsor should have to pay a small annual fee. In San Francisco, annual fees range from \$100 for public parklets, to \$2,000 for commercial parklets.</p> <p>Local government areas could create design tool kits of approved street furniture to make the application process run more smoothly.</p>   | Local governments   |



## For more information

### Case study: London’s mode-share target

Healthy Streets. 2022. Making streets healthy places for everyone, accessed via <https://www.healthystreets.com/>

Mayor of London. 2018. Mayor’s Transport Strategy 2018, accessed via <https://www.london.gov.uk/what-we-do/transport/our-vision-transport/mayors-transport-strategy-2018?intcmp=46686>

Transport for London. 2021. The Mayor’s Transport Strategy, accessed via <https://tfl.gov.uk/corporate/about-tfl/the-mayors-transport-strategy>

### Case study: City of Canterbury–Bankstown shifting mode-share

City of Canterbury–Bankstown. 2022. Master Plans, accessed via <https://www.cbccity.nsw.gov.au/development/planning-for-the-city/master-plans/>

### Case study: Car-share and Public Transport integration in NSW

Inner West Council. 2019. Council to drive new car share integration pilot at light rail stations, Media Release, accessed via <https://www.innerwest.nsw.gov.au/about/news/media-releases/2019-media-releases/council-to-drive-new-car-share-integration-pilot-at-light-rail-stations>

Transport for NSW. 2022. Car share trial to change travel to Blue Mountains, Media Release, accessed via <https://roads-waterways.transport.nsw.gov.au/about/news-events/news/roads-and-maritime/2022/220406-car-share-trial-to-change-travel-to-blue-mountains.html>

### Case study: Sydney residential developments with car-share

Barr, E. 2018. Hurstville car share: GoGet sets up in residential development, The Daily Telegraph, accessed via <https://www.dailytelegraph.com.au/newslocal/stgeorge-shire-standard/hurstville-car-share-goget-sets-up-in-residential-development/news-story/5f40fadfd29e551210e6ed401b524078>

Burke, K. 2019. How the rise of car sharing could change the property market, Domain, accessed via <https://www.domain.com.au/news/how-the-rise-of-car-share-is-impacting-the-property-market-839948/>

Burke, K. 2019. How the rise of car sharing could slash property prices. Australian Financial Review, accessed via <https://www.afr.com/property/residential/how-the-rise-of-car-sharing-could-slash-property-prices-20190524-p51qog>

Fraser Property. 2020. Car space no longer a necessity in connected communities, accessed via <https://www.fraserproperty.com.au/A-Different-Way/Sustainability-News/2020/03/03/Car-Space-No-Longer-Necessity>

GoGet. 2014. Why the SuperPod is the future of property development, accessed via <https://www.goget.com.au/superpod-future-property-development/>

GoGet. 2022. GoGet On-Site | Carshare for Developers, accessed via <https://www.goget.com.au/business/goget-for-developers/>

GoGet. 2022. GoGet & Mirvac partner to make car free living a breeze, accessed via <https://www.goget.com.au/blog/goget-mirvac/>

Mariotti, B. 2020. Build it and they will come, Property Council of Australia, accessed via <https://info.propertycouncil.com.au/property-australia-blog/build-it-and-they-will-come>

PTC Consultants. 2019. Car sharing in residential developments, accessed via <https://www.ptcconsultants.co/car-sharing-in-residential/>

Tan, S. 2018. Piety THP installs Australia’s second largest GoGet pod in Hurstville, Australian Financial Review, accessed via <https://www.afr.com/property/piety-thp-installs-australias-second-largest-goget-pod-in-hurstville-20180924-h15smn>

Third.i. 2019. Thirdi brings GoGet car share to Newcastle, accessed via <https://thirdigroup.com.au/thirdi-brings-goget-car-share-to-newcastle/>

Williams, S. 2021. Sydney first-home buyers sacrificing car spaces to get on the property ladder, Domain, accessed via <https://www.domain.com.au/news/sydney-first-home-buyers-sacrificing-car-spaces-to-get-on-the-property-ladder-1072249/>

### Case study: Amsterdam ‘Park and Ride’

City of Amsterdam. 2021. Park and Ride (P+R), accessed via <https://www.amsterdam.nl/en/parking/park-ride/>

de Lange, M. 2014. The Amsterdam Mobility Fund, Innovativ Parkering, accessed via [https://park4sump.eu/sites/default/files/GoodPracticesExamplesCaseStudies/Use\\_of\\_Revenues/CS24\\_Amsterdam\\_mobility\\_fund\\_final.pdf](https://park4sump.eu/sites/default/files/GoodPracticesExamplesCaseStudies/Use_of_Revenues/CS24_Amsterdam_mobility_fund_final.pdf)

Dijk, M., & Parkhurst, G. 2014. Understanding the mobility-transformative qualities of urban park and ride policies in the UK and the Netherlands, International Journal of Automotive Technology and Management, accessed via [https://www.researchgate.net/publication/276899448\\_Understanding\\_the\\_mobility-transformative\\_qualities\\_of\\_urban\\_park\\_and\\_ride\\_policies\\_in\\_the\\_UK\\_and\\_the\\_Netherlands](https://www.researchgate.net/publication/276899448_Understanding_the_mobility-transformative_qualities_of_urban_park_and_ride_policies_in_the_UK_and_the_Netherlands)

iamsteram.com. 2021. Park and Ride (P&R Amsterdam), accessed via <https://www.iamsterdam.com/en/plan-your-trip/getting-around/parking/park-and-ride>

ITDP. 2011. Europe’s Parking U-Turn From Accommodation to Regulation, Institute for Transportation and Development Policy, accessed via [https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes\\_Parking\\_U-Turn\\_ITDP.pdf](https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes_Parking_U-Turn_ITDP.pdf)

Ostermeier, F., Koster, H., Nunes, L., & Ommeren, J. 2021. Citywide Parking Policy and Traffic: Evidence from Amsterdam, Tinbergen Institute Discussion Paper, accessed via <https://papers.tinbergen.nl/21015.pdf>

Peters, Adele. 2015. These Historical Photos Show How Amsterdam Turned Itself Into A Bike Rider’s Paradise: Pictures from the turn of the 20th century to today show how Amsterdam slowly—and intentionally—changed its car culture. Your city can do it, too, Fast Company, accessed on 5th October 2021, via: <https://www.fastcompany.com/3052699/these-historical-photos-show-how-amsterdam-turned-itself-into-a-bike-riders-paradise>

### Case study: Waverley Council maximum parking requirements

Barter, P. 2021. How parking mandates got nixed with minimal fuss in an area in Sydney: Interview with Sara Stace, Reinventing Parking Podcast, accessed via <https://www.reinventingparking.org/2021/09/nixingminimumsSydney.html>

Waverley Council. 2017. Waverley’s People, Movement and Places: Where we go and how we get there, accessed via [https://www.waverley.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0006/160584/People,\\_Movement\\_and\\_Places.pdf](https://www.waverley.nsw.gov.au/__data/assets/pdf_file/0006/160584/People,_Movement_and_Places.pdf)

Waverley Council. 2022. Waverley Development Control Plan 2012: Part B – General Provisions, accessed via [https://www.waverley.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0009/177480/Waverley\\_DCP\\_Amendment\\_No9\\_PartB\\_General\\_Provisions.pdf](https://www.waverley.nsw.gov.au/__data/assets/pdf_file/0009/177480/Waverley_DCP_Amendment_No9_PartB_General_Provisions.pdf)

### Case study: California’s unbundled parking

Adelman, C. 2019. Parking reform lowers development costs in California and Beyond, Lesar Development Consultants, accessed via <https://lesardevelopment.com/parking-reform-lowers-development-costs-in-california-and-beyond/>

California Legislative Information. 2021. SB-7 Environmental quality: Jobs and Economic Improvement Through Environmental Leadership Act of 2021, Senate Bill, accessed via [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=2021202205B7](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=2021202205B7)

Capital City Development Corporation. 2016. Getting More with Less: Managing Residential Parking in Urban Developments with Carsharing and Unbundling Best Practices, Downtown Boise: Parking Strategic Plan, accessed via <http://www.ccdcb Boise.com/wp-content/uploads/2016/02/Document-D3-City-Carshare-Best-Practices.pdf>

City and County of San Francisco. 2022. SEC 167: Parking costs separated from housing costs in new residential buildings, San Francisco Planning Code, accessed via [https://codelibrary.amlegal.com/codes/san\\_francisco/latest/sf\\_planning/0-0-0-19275](https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_planning/0-0-0-19275)

City of Berkeley. 2021. Residential parking and transportation demand management, General Information, accessed via [https://www.cityofberkeley.info/Planning\\_and\\_Development/Land\\_Use\\_Division/Parking\\_and\\_Transportation\\_Demand\\_Management.aspx](https://www.cityofberkeley.info/Planning_and_Development/Land_Use_Division/Parking_and_Transportation_Demand_Management.aspx)

City of Berkeley. 2022. Chapter 23.224 Transportation Demand Management, Title 23 Zoning Citywide Provisions, Berkeley Municipal Code, accessed via <https://berkeley.municipal.codes/BMC/23.334>

City of Oakland. 2021. Chapter 17.116 – Off-street parking and loading requirements, Oakland California Planning Code, accessed via [https://library.municode.com/ca/oakland/codes/planning\\_code?nodeId=TIT17PL\\_CH17.116OREPALORE](https://library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.116OREPALORE)

City of Santa Monica. 2015. Chapter 9.28 Parking, Loading, and Circulation, Article 9 Planning and Zoning, Santa Monica Municipal Code, accessed via [http://www.qcode.us/codes/santamonica/view.php?topic=9-3-9\\_28-9\\_28\\_110](http://www.qcode.us/codes/santamonica/view.php?topic=9-3-9_28-9_28_110)

Cudmore, B. 2019. To become a less car-centric city, San Diego takes aim at parking lot quotas, NRDC, accessed via <https://www.nrdc.org/stories/become-less-car-centric-city-san-diego-takes-aim-parking-lot-quotas>

Hess, D. & Rehler, J. 2021. America has eight parking spaces for every car: here’s how cities are rethinking that land, Fast Company, accessed via <https://www.fastcompany.com/90645900/america-has-eight-parking-spaces-for-every-car-heres-how-cities-are-rethinking-that-land>

Klipp, L. 2004. The real costs of San Francisco’s off-street residential parking requirements: an analysis of parking’s impact on housing finance ability and affordability, Transportation for a Livable City, accessed via <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.192.1636&rep=rep1&type=pdf>

The City of San Diego. 2019. Transit Priority Area Multifamily Residential Parking Standards, Planning Department, accessed via <https://www.sandiego.gov/planning/programs/transportation/mobility/tpa>

The City of San Diego. 2022. Division 5: Parking Regulations, Article 2: General Development Regulations, San Diego Municipal Code, accessed via <https://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art02Division05.pdf>

### Case study: United Kingdom EV requirements for new buildings

UK Government. 2021. Consultation Response: EV Charge Points in Residential and Non-Residential Buildings, Department for Transport, accessed via [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/104375/consultation-response-electric-vehicle-charging-in-residential-and-non-residential-buildings.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/104375/consultation-response-electric-vehicle-charging-in-residential-and-non-residential-buildings.pdf)

UK Government. 2021. Approved Document S: infrastructure for charging electric vehicles, The Building Regulations 2010, accessed via [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1057375/AD\\_S.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057375/AD_S.pdf)

### Case study: Austin Parking Benefit District

City of Austin. 2022. Municipal Code: Parking Benefit Districts, accessed via [https://library.municode.com/tx/austin/codes/code\\_of\\_ordinances?nodeId=TIT12TRRE\\_CH12-6PABEDI](https://library.municode.com/tx/austin/codes/code_of_ordinances?nodeId=TIT12TRRE_CH12-6PABEDI)

Metropolitan Planning Council. 2013. Solving the parking predicament: How parking benefit districts revitalized Austin, Texas, accessed via <https://www.metroplanning.org/news/6717/Solving-the-parking-predicament-How-parking-benefit-districts-revitalized-Austin-Texas>

### Case study: Barcelona public bike-share ‘Bicing’

Barcelona City Council. 2022. Bicing: Barcelona public bicycle service, accessed via <https://www.barcelona.cat/international/welcome/en/bicing-barcelona-public-bicycle-service>

Bicing. 2022. Move sustainably around Barcelona, accessed via <https://www.bicing.barcelona/>

Institute for Transportation and Development Policy. 2011. Europe’s Parking U-Turn: From Accommodation to Regulation, accessed via [https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes\\_Parking\\_U-Turn\\_ITDP.pdf](https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes_Parking_U-Turn_ITDP.pdf)

Institute for Transportation and Development Policy. 2018. The Bikeshare Planning Guide, accessed via <https://www.transformative-mobility.org/assets/publications/The-Bikeshare-Planning-Guide-ITDP-Date1.pdf>

### Case study: San Francisco Parklets

City & County of San Francisco. 2021. Shared Spaces Manual, accessed via <https://sf.gov/sites/default/files/2021-08/Shared%20Spaces%20Manual%20DRAFT%2020210813.pdf>

City & County of San Francisco. 2021. Making the Shared Spaces Program permanent, accessed via <https://sf.gov/information/making-shared-spaces-program-permanent>

City & County of San Francisco. 2022. Shared Spaces: use outdoor places like sidewalks, streets and open lots for public and business activities, accessed via <https://sf.gov/topics/shared-spaces>

City & County of San Francisco. 2022. Total Shared Spaces Applications, Ops Dashboard, accessed via <https://sfgov.maps.arcgis.com/apps/opsdashboard/index.html#/b1e37820230a4017ae53d645a96c774b>

Panganiban, J. & Ocubillo, R. A. 2014. Citywide assessment of parklets & plazas: summary of data collected for summer 2014 Public Life Study, San Francisco Planning Department, accessed via [https://default.sfplanning.org/Citywide/publicspace/docs/Parklet\\_Plaza\\_Assessment.pdf](https://default.sfplanning.org/Citywide/publicspace/docs/Parklet_Plaza_Assessment.pdf)

Park(ing) Day. 2022. About, accessed via <https://www.myparkingday.org/>

Sant, A. 2022. From one parking spot to 100 public parks: The history of San Francisco’s street transformation, Fast Company, accessed via <https://www.fastcompany.com/90730521/from-one-parking-spot-to-100-public-parks-the-history-of-san-franciscos-street-transformation>

### Case Study: San Francisco SFpark

Pierce, G., Shoup, D. 2013. SFpark: Pricing Parking by Demand, ACCESS Magazine, 1(43), p. 20-28, accessed on 27th September 2021, via: [https://www.researchgate.net/publication/265965700\\_SFpark\\_Pricing\\_Parking\\_by\\_Demand](https://www.researchgate.net/publication/265965700_SFpark_Pricing_Parking_by_Demand)

SFMTA. 2014. SFpark Pilot Project Evaluation: The SFMTA’s evaluation of the benefits of the SFpark pilot project, San Francisco Municipal Transportation Agency, p.1-141, accessed on 27th September 2021, via: [https://www.sfmta.com/sites/default/files/reports-and-documents/2018/08/sfpark\\_pilot\\_project\\_evaluation.pdf](https://www.sfmta.com/sites/default/files/reports-and-documents/2018/08/sfpark_pilot_project_evaluation.pdf)

SFMTA. 2021. SFpark Pilot Program, sfmta.com/projects, accessed on 27th September 2021, via: <https://www.sfmta.com/projects/sfpark-pilot-program>

Shoup, D. 2011a. Free Parking or Free Markets, ACCESS Magazine, v. 1(38), p.28-35, accessed on 27th September 2021, via: <https://escholarship.org/uc/item/00w047hr>

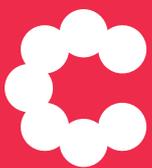
Shoup, D. 2011b. Yes, Parking Reform Is Possible: A progress report from the author of ‘The High Cost of Free Parking’, UC Berkeley: University of California Transportation Center, p.31-35, accessed on 27th September 2021, via: <https://escholarship.org/uc/item/4p60t8ck>



## Footnotes

- 1 Transport for NSW. 2018. Future Transport Strategy 2056, accessed via [https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future\\_Transport\\_2056\\_Strategy.pdf](https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf)
- 2 Transport for NSW. 2016. Greater Sydney Services and Infrastructure Plan, Future Networks, accessed via <https://future.transport.nsw.gov.au/plans/greater-sydney-services-and-infrastructure-plan/future-networks>
- 3 See [https://nsw.keoride.com.au/?\\_ga=2.239025157.465629952.1637101722-1120147070.1637101722](https://nsw.keoride.com.au/?_ga=2.239025157.465629952.1637101722-1120147070.1637101722)
- 4 See <https://cooee.busways.com.au/>
- 5 Institute for Transportation and Development Policy. 2016. The BRT Standard, accessed via <https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/BRT2016-REV7.75.pdf>
- 6 idCommunity Demographic Resources. 2016. Greater Sydney Method of travel to work (ABS census data), accessed via: <https://profile.id.com.au/australia/travel-to-work?WebID=250>
- 7 Boyle, P. 2016. The impact of car share services in Australia, International Car sharing Association, accessed via: <https://carsharing.org/wp-content/uploads/2016/01/The-Impact-of-Car-Share-Services-in-Australia.pdf>
- 8 SGS Economics. 2012. Benefit-Cost Analysis of Car Share within the City of Sydney Report, accessed via: <https://www.scribd.com/document/368308097/2-Benefit-Cost-Analysis-of-Car-Share>
- 9 GoGet. 2020. Compare to car ownership, accessed via <https://www.goget.com.au/pricing/compare-to-car-ownership/>
- 10 GoGet. 2020. Compare to car ownership, accessed via <https://www.goget.com.au/pricing/compare-to-car-ownership/>
- 11 Sheer Property Group Pty Ltd & anor v Randwick City Council [2013] NSWLEC 1168 (2 September 2013), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2013/1168.html?stem=0&synonyms=0&query=title>
- 12 41 Robey Pty Ltd v Randwick City Council [2020] NSWLEC 1541 (9 November 2020), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2020/1541.html>
- 13 Scape Australia Swanston Pty Ltd v Randwick City Council [2021] NSWLEC 1344 (11 June 2021), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2021/1344.html>
- 14 State Revenue Office Victoria. 2022. Congestion levy exemptions and concessions, accessed via <https://www.sro.vic.gov.au/congestion-levy-exemptions-and-concessions>
- 15 Parramatta City Council. 2021. Parramatta CBD Parking Strategy, accessed via <https://participate.cityofparramatta.nsw.gov.au/cbd-parking>
- 16 NSW Government, Sydney Local Environmental Plan 2012, accessed via <https://legislation.nsw.gov.au/view/html/inforce/current/epi-2012-0628>
- 17 Parramatta City Council. 2021. Parramatta CBD Parking Strategy, accessed via <https://participate.cityofparramatta.nsw.gov.au/cbd-parking>
- 18 Ragell, R. 2021. Don't park your policy: parking requirements are always in motion, Kinesis Blog, accessed via <https://platform.kinesis.org/posts/dont-park-your-policy.html>
- 19 NSW RTA, Guide to Traffic Generating Developments version 2.2, accessed via <https://www.planning.nsw.gov.au/Policy-and-Legislation/Housing/Better-Apartments> > <https://roads-waterways.transport.nsw.gov.au/business-industry/partners-suppliers/documents/guides-manuals/guide-to-generating-traffic-developments.pdf>
- 20 Weinberger, R. et al. 2014. An Overview of Management Strategies, Institute for Transportation and Development Policy, accessed via [https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/ITDP\\_US\\_Parking\\_Report.pdf](https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/ITDP_US_Parking_Report.pdf)
- 21 Clements, R. 2019. Socialising Parking: Public opportunities via regulated market approaches, State of Australian Cities Conference and PhD Symposium, accessed via <https://apo.org.au/sites/default/files/resource-files/2019-12/apo-nid305268.pdf>
- 22 National Australian Built Environment Rating System, NABERS Energy, accessed via <https://www.nabers.gov.au/ratings/our-ratings/nabers-energy>
- 23 NSW Government. 2022. Making your residential strata building EV ready, Energy Saver program, accessed via <https://www.energysaver.nsw.gov.au/reducing-emissions-nsw/electric-vehicles/electric-vehicle-ready-buildings/making-your-residential-strata-building-ev-ready>
- 24 Kodransky, M. & Hermann, G. 2011. Europe's Parking U-Turn: From Accommodation to Regulation, Institute for Transportation and Development Policy, accessed via [https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes\\_Parking\\_U-Turn\\_ITDP.pdf](https://itdpdotorg.wpengine.com/wp-content/uploads/2014/07/Europes_Parking_U-Turn_ITDP.pdf)
- 25 U.S. Department of Transportation. 2020. Parking Benefit Districts, State of Practices in the United States, Federal Highway Administration, accessed via [https://www.fhwa.dot.gov/ipd/pdfs/value\\_capture/strategies\\_in\\_practice/us\\_parking\\_benefit\\_districts.pdf](https://www.fhwa.dot.gov/ipd/pdfs/value_capture/strategies_in_practice/us_parking_benefit_districts.pdf)
- 26 NSW Government. 2022. Parking Space Levy, Transport for NSW, access via <https://www.transport.nsw.gov.au/programs/parking-space-levy#:~:text=Parking%20Space%20Levy%20The%20Parking%20Space%20Levy%20%28PSL%29,reduce%20congestion%20in%20key%20business%20districts%20throughout%20Sydney>
- 27 NSW Government. 2022. Parking Space Levy, Transport for NSW, access via <https://www.transport.nsw.gov.au/programs/parking-space-levy#:~:text=Parking%20Space%20Levy%20The%20Parking%20Space%20Levy%20%28PSL%29,reduce%20congestion%20in%20key%20business%20districts%20throughout%20Sydney>
- 28 DataNSW. 2021. Parking offenses: Parking related penalty notices issued by issuing authority, financial year and offence, accessed via <https://www.revenue.nsw.gov.au/help-centre/resources-library/statistics/Parking-offences-DSF-011.xlsx>
- 29 Turner Architects v City of Botany Bay Council [2016] NSWLEC 1186 (24 May 2016), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2016/1186.html>
- 30 Sheer Property Group Pty Ltd & anor v Randwick City Council [2013] NSWLEC 1168 (2 September 2013), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2013/1168.html?stem=0&synonyms=0&query=title>
- 31 41 Robey Pty Ltd v Randwick City Council [2020] NSWLEC 1541 (9 November 2020), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2020/1541.html>
- 32 Scape Australia Swanston Pty Ltd v Randwick City Council [2021] NSWLEC 1344 (11 June 2021), accessed via <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/nsw/NSWLEC/2021/1344.html>
- 33 NSW Department of Planning and Environment, Car parking requirements in SEPP 65, accessed via <https://www.planning.nsw.gov.au/Policy-and-Legislation/Housing/Better-Apartments> > <https://www.planning.nsw.gov.au/-/media/Files/DPE/Other/car-parking-requirements-in-SEPP-65.pdf?la=en>
- 34 NSW Department of Planning and Environment, Apartment Design Guide, accessed via <https://www.planning.nsw.gov.au/Policy-and-Legislation/Housing/Better-Apartments> > <https://www.planning.nsw.gov.au/Policy-and-Legislation/Housing/Apartment-Design-Guide>
- 35 NSW RTA, Guide to Traffic Generating Developments version 2.2, accessed via <https://www.planning.nsw.gov.au/Policy-and-Legislation/Housing/Better-Apartments> > <https://roads-waterways.transport.nsw.gov.au/business-industry/partners-suppliers/documents/guides-manuals/guide-to-generating-traffic-developments.pdf>
- 36 NSW Government. 2008. C2008-27 Increase in Parking Space Levy Detailed Outline, Premier and Cabinet, accessed via <https://arp.nsw.gov.au/c2008-27-increase-parking-space-levy/>
- 37 NSW Government. 2008. Parking Space Levy Act 1992 No 32, NSW Legislation, accessed via <https://legislation.nsw.gov.au/view/html/repealed/current/act-1992-032#sec.11>
- 38 NSW Government. 2022. Parking Space Levy, Transport for NSW, access via <https://www.transport.nsw.gov.au/programs/parking-space-levy#:~:text=Parking%20Space%20Levy%20The%20Parking%20Space%20Levy%20%28PSL%29,reduce%20congestion%20in%20key%20business%20districts%20throughout%20Sydney>
- 39 Transport for NSW. 2021. Total Revenue and Expenses, Public Transport Fund, accessed via <https://www.transport.nsw.gov.au/system/files/media/documents/2021/PSL%20Rev%20and%20Exp%20.pdf>
- 40 Transport for NSW. 2021. Summary of the Capital Projects FY19-20, Public Transport Fund, accessed via <https://www.transport.nsw.gov.au/system/files/media/documents/2021/PSL%20-%20Completed%20Project%20Listing.pdf>
- 41 SF GOV. 2022. Making the Shared Spaces Program Permanent, accessed via <https://sf.gov/information/making-shared-spaces-program-permanent>
- 42 NYCDOT. 2022. Pedestrians: Street Seats, accessed via <https://www1.nyc.gov/html/dot/html/pedestrians/streetseats.shtml>





**Committee  
for  
Sydney**

### **Keep in touch**

Committee for Sydney  
[sydney.org.au](http://sydney.org.au)

-  [@Committee4Syd](https://twitter.com/Committee4Syd)
-  [committee@sydney.org.au](mailto:committee@sydney.org.au)
-  +61 2 8320 6750